

t63_oppcat_1

(TMbjdRRsSZ6FMvdPDjjP8rHygi7CwtbKbMH)

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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 $k11_oppcat.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_oppcat.1 : \iota \Rightarrow \iota$ be given. Let $k10_oppcat.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_oppcat.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_cat.1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct.0 X0) \wedge ((\neg v11_struct.0 X0) \wedge ((v2_cat.1 \\ & X0) \wedge ((v3_cat.1 X0) \wedge ((v4_cat.1 X0) \wedge ((v5_cat.1 X0) \wedge ((v6_cat.1 \\ & X0) \wedge (l1_cat.1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct.0 X1) \wedge ((\\ & \neg v11_struct.0 X1) \wedge ((v2_cat.1 X1) \wedge ((v3_cat.1 X1) \wedge ((v4_cat.1 \\ & X1) \wedge ((v5_cat.1 X1) \wedge ((v6_cat.1 X1) \wedge (l1_cat.1 X1)))))))) \Rightarrow (\forall X2. \\ & (m2_cat.1 X2 X0 X1) \Rightarrow (m1_oppcat.1 (k10_oppcat.1 X0 X1 X2) (k2_oppcat.1 \\ & X0) X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct.0 X0) \wedge ((\neg v11_struct.0 X0) \wedge ((v2_cat.1 \\ & X0) \wedge ((v3_cat.1 X0) \wedge ((v4_cat.1 X0) \wedge ((v5_cat.1 X0) \wedge ((v6_cat.1 \\ & X0) \wedge (l1_cat.1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct.0 X1) \wedge ((\\ & \neg v11_struct.0 X1) \wedge ((v2_cat.1 X1) \wedge ((v3_cat.1 X1) \wedge ((v4_cat.1 \\ & X1) \wedge ((v5_cat.1 X1) \wedge ((v6_cat.1 X1) \wedge (l1_cat.1 X1)))))))) \Rightarrow (\forall X2. \\ & (m1_oppcat.1 X2 X0 X1) \Rightarrow (m2_cat.1 (k11_oppcat.1 X0 X1 X2) X0 (k2_oppcat.1 \\ & X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct.0 X0) \wedge ((\neg v11_struct.0 X0) \wedge ((v2_cat.1 \\ & X0) \wedge ((v3_cat.1 X0) \wedge ((v4_cat.1 X0) \wedge ((v5_cat.1 X0) \wedge ((v6_cat.1 \\ & X0) \wedge (l1_cat.1 X0)))))))) \Rightarrow ((\neg v2_struct.0 (k2_oppcat.1 X0)) \wedge \\ & ((\neg v11_struct.0 (k2_oppcat.1 X0)) \wedge ((v1_cat.1 (k2_oppcat.1 X0)) \wedge \\ & ((v2_cat.1 (k2_oppcat.1 X0)) \wedge ((v3_cat.1 (k2_oppcat.1 X0)) \wedge \\ & ((v4_cat.1 (k2_oppcat.1 X0)) \wedge ((v5_cat.1 (k2_oppcat.1 X0)) \wedge ((v6_cat.1 \\ & (k2_oppcat.1 X0)))))))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ &X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ &X0) \wedge (l1_cat_1 X0))))))) \Rightarrow ((\neg v2_struct_0 (k2_oppcat_1 X0)) \wedge \\ &((\neg v11_struct_0 (k2_oppcat_1 X0)) \wedge ((v1_cat_1 (k2_oppcat_1 X0)) \wedge \\ &(l1_cat_1 (k2_oppcat_1 X0)))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ &X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ &X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\\ &\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\ &X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\ &(m2_cat_1 X2 X0 X1) \Rightarrow (m2_cat_1 (k11_oppcat_1 (k2_oppcat_1 X0) X1 \\ &(k10_oppcat_1 X0 X1 X2)) (k2_oppcat_1 X0) (k2_oppcat_1 X1)))) \end{aligned}$$