

t4_commacat (TMLSfZMuNmoRNmMnT- LoWu5z1LaMETXmmD9K)

October 27, 2020

Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_nattra_1 : \iota \Rightarrow o$ be given. 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 $k4_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_cat_1 : \iota \Rightarrow o$ be given. Let $v7_struct_0 : \iota \Rightarrow o$ be given. Let $v15_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (u4_struct_0 (k3_cat_1 X0 X1))) \Rightarrow (\forall X3. (m1_subset_1 X3 (u4_struct_0 (k3_cat_1 X0 X1))) \Rightarrow (X2 = X3)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (u1_struct_0 (k3_cat_1 X1 X0) = k1_tarski X1) \wedge (u4_struct_0 (k3_cat_1 X1 X0) = k1_tarski X0) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. v2_nattra_1 (k3_cat_1 X0 X1) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge ((v2_nattra_1 X0) \wedge (l1_cat_1 X0)))))))))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k2_cat_1 X0 X1 X1 = k1_tarski (k4_cat_1 X0 X1))) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & (k3_cat_1 X0 X1))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (\\ & k3_cat_1 X0 X1))) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 (k3_cat_1 \\ & X0 X1))) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 (k3_cat_1 X0 \\ & X1))) \Rightarrow (\forall X6.(m1_cat_1 X6 (k3_cat_1 X0 X1) X2 X3) \Rightarrow (\forall X7. \\ & (m1_cat_1 X7 (k3_cat_1 X0 X1) X4 X5) \Rightarrow (X6 = X7)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & (k3_cat_1 X0 X1))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (\\ & k3_cat_1 X0 X1))) \Rightarrow (\forall X4.(m1_subset_1 X4 (u4_struct_0 (k3_cat_1 \\ & X0 X1))) \Rightarrow (m1_cat_1 X4 (k3_cat_1 X0 X1) X2 X3))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\neg v1_xboole_0 (k1_tarski X0) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(v1_cat_1 (k3_cat_1 X0 X1)) \wedge (v2_cat_1 (k3_cat_1 X0 X1)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(\neg v2_struct_0 (k3_cat_1 X0 X1)) \wedge ((v7_struct_0 \\ & (k3_cat_1 X0 X1)) \wedge ((\neg v11_struct_0 (k3_cat_1 X0 X1)) \wedge ((v15_struct_0 \\ & (k3_cat_1 X0 X1)) \wedge (v1_cat_1 (k3_cat_1 X0 X1)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\exists X1.m1_subset_1 X1 X0 \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge (m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (m1_cat_1 (k4_cat_1 X0 X1) X0 X1 X1) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(v1_cat_1 (k3_cat_1 X0 X1)) \wedge (l1_cat_1 (k3_cat_1 X0 X1)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1_tarski X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (X2 = X0)) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_cat_1 X0) \Rightarrow & (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 \\ X0) \wedge (v15_struct_0 X0)) \Rightarrow & ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ X0) \wedge ((v4_cat_1 X0) \wedge (v6_cat_1 X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_cat_1 X0) \Rightarrow & (((\neg v2_struct_0 X0) \wedge (v7_struct_0 \\ X0) \wedge (\neg v11_struct_0 X0)) \Rightarrow & ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ X0) \wedge ((v3_cat_1 X0) \wedge (v5_cat_1 X0)))))) \end{aligned} \quad (16)$$

Theorem 1

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ (k3_cat_1 X1 X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (\\ k3_cat_1 X1 X0))) \Rightarrow (k2_cat_1 (k3_cat_1 X1 X0) X2 X3 = k1_tarski X0)) \end{aligned}$$