

t64_cat_3

(TMbe9V8j4ZcBnVesbT22SkoH6K56UQEQnUU)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ be given. Let $l1_graph_1 : \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge \\ & ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge \\ & ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u4_struct_0 X1)) \Rightarrow (r2_funct_2 X0 (u1_struct_0 X1) (k3_cat_3 \\ & X1 X0 (k8_funcop_1 (u4_struct_0 X1) X0 X2)) (k8_funcop_1 (u1_struct_0 \\ & X1) X0 (k4_graph_1 X1 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X2 X0)) \Rightarrow (k8_funcop_1 X0 X1 X2 = k2_funcop_1 X1 X2) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X2 X0)) \Rightarrow (k1_cat_3 X0 X1 X2 = k16_funcop_1 X1 X2) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v11_struct_0 X0) \wedge (l5_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u4_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l1_graph_1 X0) \Rightarrow (l5_struct_0 X0) \quad (6)$$

Assume the following.

$$\forall X0.(l1_cat_1 X0) \Rightarrow (l1_graph_1 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 \\ & X2 X0)) \Rightarrow ((v1_funct_1 (k8_funcop_1 X0 X1 X2)) \wedge ((v1_funct_2 (k8_funcop_1 \\ & X0 X1 X2) X1 X0) \wedge (m1_subset_1 (k8_funcop_1 X0 X1 X2) (k1_zfmisc_1 \\ & (k2_zfmisc_1 X1 X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. k16_funcop_1 X0 X1 = k7_funcop_1 (k1_tarski X0) X1 \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. \forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 \\ & X2 (u4_struct_0 X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 (u4_struct_0 X0)))))) \Rightarrow ((m2_cat_3 X3 X0 X1 X2) \Leftrightarrow (r2_funct_2 X2 \\ & (u1_struct_0 X0) (k3_cat_3 X0 X2 X3) (k8_funcop_1 (u1_struct_0 \\ & X0) X2 X1)))))) \end{aligned} \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge \\ & ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge \\ & ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u4_struct_0 \\ & X1)) \Rightarrow ((k4_graph_1 X1 X3 = X2) \Rightarrow (m2_cat_3 (k1_cat_3 (u4_struct_0 \\ & X1) X0 X3) X1 X2 (k1_tarski X0)))))) \end{aligned}$$