

t16_isocat_2 (TM- Fzjq6eRvfzWMhXP1mm5n4dqbfZjHUeLkX)

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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 $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_cat_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $r2_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_cat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_isocat_1 : \iota \Rightarrow \iota$ be given. Let $k3_isocat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_graph_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_cat_1 \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (k2_cat_1 \\ & X0 (k3_graph_1 X0 X1) (k4_graph_1 X0 X1) \neq k1_xboole_0)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\\ & \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\ & X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\ & ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\ & X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\ & X2)))))))) \Rightarrow (\forall X3. (m2_cat_1 X3 (k8_cat_2 X0 X1) X2)) \Rightarrow (\forall X4. \\ & (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\forall X5. (m1_subset_1 X5 \\ & (u1_struct_0 X0)) \Rightarrow ((k2_cat_1 X0 X4 X5 \neq k1_xboole_0) \Rightarrow (\forall X6. \\ & (m1_cat_1 X6 X0 X4 X5) \Rightarrow ((r2_nattra_1 X1 X2 (k12_cat_2 X0 X1 X2 X3 X4) \\ & (k12_cat_2 X0 X1 X2 X3 X5)) \wedge (m2_nattra_1 (k1_partfun1 (u1_struct_0 \\ & X1) (u4_struct_0 X1) (u4_struct_0 X1) (u4_struct_0 X2) (k7_isocat_1 \\ & X1) (k3_isocat_2 X0 X1 X2 X3 X6)) X1 X2 (k12_cat_2 X0 X1 X2 X3 X4) (k12_cat_2 \\ & X0 X1 X2 X3 X5)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge(l1_cat_1 X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(\exists X3.m1_cat_1 X3 X0 X1 X2) \quad (3)$$

Assume the following.

$$\forall X0.(l1_cat_1 X0)\Rightarrow(l1_graph_1 X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge(l1_graph_1 X0))\wedge(m1_subset_1 X1 (u4_struct_0 X0))\wedge(k4_graph_1 X0 X1) (u1_struct_0 X0))\Rightarrow(m1_subset_1 (k4_graph_1 X0 X1) (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge(l1_graph_1 X0))\wedge(m1_subset_1 X1 (u4_struct_0 X0))\wedge(k3_graph_1 X0 X1) (u1_struct_0 X0))\Rightarrow(m1_subset_1 (k3_graph_1 X0 X1) (u1_struct_0 X0)) \quad (6)$$

Theorem 1

$$\forall X0.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(\forall X1.(((\neg v2_struct_0 X1)\wedge(\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\Rightarrow(\forall X2.(((\neg v2_struct_0 X2)\wedge(\neg v11_struct_0 X2)\wedge((v2_cat_1 X2)\wedge((v3_cat_1 X2)\wedge((v4_cat_1 X2)\wedge((v5_cat_1 X2)\wedge((v6_cat_1 X2)\wedge(l1_cat_1 X2))))))))\Rightarrow(\forall X3.(m2_cat_1 X3 (k8_cat_2 X0 X1) X2)\Rightarrow(\forall X4.(m1_subset_1 X4 (u4_struct_0 X0))\Rightarrow(r2_nattra_1 X1 X2 (k12_cat_2 X0 X1 X2 X3 (k3_graph_1 X0 X4) (k12_cat_2 X0 X1 X2 X3 (k4_graph_1 X0 X4))))))))))$$