

t13_cat_5

(TMPW9aWzoQvT63vDBmBKgZ9dUjg4crJD7GE)

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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 $v3_cat_5 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_cat_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_cat_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_cat_5 : \iota \Rightarrow o$ be given. Let $k13_mcart_1 : \iota \Rightarrow \iota$ be given. Let $k14_mcart_1 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_cat_5 \\ & X0) \wedge (l1_cat_1 X0)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u4_struct_0 \\ X0)) \Rightarrow ((k3_graph_1 X0 X1 = k13_mcart_1 X1) \wedge ((k4_graph_1 X0 X1 = k14_mcart_1 \\ X1) \wedge (X1 = k4_tarski (k1_domain_1 (u1_struct_0 X0) (u1_struct_0 \\ X0) (k3_graph_1 X0 X1) (k4_graph_1 X0 X1)) (k2_xtuple_0 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & ((v1_cat_5 X0) \wedge (l1_cat_1 X0)))) \wedge (m1_subset_1 X1 (u4_struct_0 \\ X0))) \Rightarrow (k2_cat_5 X0 X1 = k14_mcart_1 X1) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & ((v1_cat_5 X0) \wedge (l1_cat_1 X0)))) \wedge (m1_subset_1 X1 (u4_struct_0 \\ X0))) \Rightarrow (k1_cat_5 X0 X1 = k13_mcart_1 X1) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_cat_1 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 \\ X0) \wedge ((v6_cat_1 X0) \wedge (v3_cat_5 X0)))))))) \Rightarrow ((\neg v2_struct_0 X0) \wedge \\ & ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 \\ X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (v1_cat_5 X0)))))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge (v2_cat_1 \\ & X0) \wedge (v3_cat_1 X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 X0) \wedge (v6_cat_1 \\ & X0) \wedge (v3_cat_5 X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (u4_struct_0 X0)) \Rightarrow ((k3_graph_1 X0 X1 = k1_cat_5 X0 X1) \wedge (k4_graph_1 \\ X0 X1 = k2_cat_5 X0 X1))) \end{aligned}$$