

t49_cat_4

(TMMB6RnRqbVYXRkJ5koSMSuLEewjXbuKniS)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k23_cat_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v7_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v15_struct_0 : \iota \Rightarrow o$ be given. Let $v5_cat_4 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $l2_cat_4 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (u1_struct_0 \\ & (k23_cat_4 X0 X1))) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ & (k23_cat_4 X0 X1))) \Rightarrow (\forall X4. (m1_subset_1 X4 (u4_struct_0 \\ & (k23_cat_4 X0 X1))) \Rightarrow (X4 \in k2_cat_1 (k23_cat_4 X0 X1) X2 X3))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (\neg v2_struct_0 (k23_cat_4 X0 X1)) \wedge ((v7_struct_0 \\ & (k23_cat_4 X0 X1)) \wedge ((\neg v11_struct_0 (k23_cat_4 X0 X1)) \wedge ((v15_struct_0 \\ & (k23_cat_4 X0 X1)) \wedge (v5_cat_4 (k23_cat_4 X0 X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (4)$$

Assume the following.

$$\forall X0. (l2_cat_4 X0) \Rightarrow (l1_cat_1 X0) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (v5_cat_4 (k23_cat_4 X0 X1)) \wedge (l2_cat_4 \\ & (k23_cat_4 X0 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_cat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k2_cat_1 X0 X1 X2 \neq k1_xboole_0) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (u4_struct_0 X0)) \Rightarrow ((m1_cat_1 X3 X0 \\
& X1 X2) \Leftrightarrow (X3 \in k2_cat_1 X0 X1 X2))))))
\end{aligned} \tag{7}$$

Theorem 1

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (u1_struct_0 \\
& (k23_cat_4 X0 X1))) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\
& (k23_cat_4 X0 X1))) \Rightarrow (\forall X4. (m1_subset_1 X4 (u4_struct_0 \\
& (k23_cat_4 X0 X1))) \Rightarrow (m1_cat_1 X4 (k23_cat_4 X0 X1) X2 X3)))
\end{aligned}$$