

t26_cat_4

(TMNsJLJbBUNs6hbesKcaerEwUh5xbPFPvxx)

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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 $v3_cat_4 : \iota \Rightarrow o$ be given. Let $l1_cat_4 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_cat_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k2_cat_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_cat_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge (v2_cat_1 X0) \wedge (v3_cat_1 \\ & \quad X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 X0) \wedge (v6_cat_1 X0) \wedge (v3_cat_4 \\ & \quad X0) \wedge (l1_cat_4 X0)))))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & \quad ((m1_subset_1 X2 (u1_struct_0 X0)) \wedge (m1_subset_1 X3 (u1_struct_0 \\ & \quad X0)) \wedge ((m1_cat_1 X4 X0 X3 X1) \wedge (m1_cat_1 X5 X0 X3 X2)))))) \Rightarrow (m1_cat_1 \\ & \quad (k9_cat_4 X0 X1 X2 X3 X4 X5) X0 X3 (k2_cat_4 X0 X1 X2)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge (v2_cat_1 \\ & \quad X0) \wedge (v3_cat_1 X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 X0) \wedge (v6_cat_1 \\ & \quad X0) \wedge (v3_cat_4 X0) \wedge (l1_cat_4 X0)))))) \Rightarrow (\forall X1. (m1_subset_1 \\ & \quad X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 \\ & \quad X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. \\ & \quad (m1_cat_1 X4 X0 X3 X1) \Rightarrow (\forall X5. (m1_cat_1 X5 X0 X3 X2) \Rightarrow (\neg (k2_cat_1 \\ & \quad X0 X3 X1 \neq k1_xboole_0) \wedge (k2_cat_1 X0 X3 X2 \neq k1_xboole_0) \wedge (\neg \forall X6. \\ & \quad (m1_cat_1 X6 X0 X3 (k2_cat_4 X0 X1 X2)) \Rightarrow ((X6 = k9_cat_4 X0 X1 X2 X3 X4 \\ & \quad X5) \Leftrightarrow ((k5_cat_1 X0 X3 (k2_cat_4 X0 X1 X2) X1 X6 (k7_cat_4 X0 X1 X2) = \\ & \quad X4) \wedge (k5_cat_1 X0 X3 (k2_cat_4 X0 X1 X2) X2 X6 (k8_cat_4 X0 X1 X2) = X5)))))))))) \end{aligned} \tag{2}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge ((v3_cat_4 X0) \wedge (l1_cat_4 X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. \\ & (m1_cat_1 X4 X0 X1 X2) \Rightarrow (\forall X5.(m1_cat_1 X5 X0 X1 X2) \Rightarrow (\forall X6. \\ & (m1_cat_1 X6 X0 X1 X3) \Rightarrow (\forall X7.(m1_cat_1 X7 X0 X1 X3) \Rightarrow ((k9_cat_4 \\ X0 X2 X3 X1 X4 X6 = k9_cat_4 X0 X2 X3 X1 X5 X7) \Rightarrow ((k2_cat_1 X0 X1 X2 = k1_xboole_0) \vee \\ & ((k2_cat_1 X0 X1 X3 = k1_xboole_0) \vee ((X4 = X5) \wedge (X6 = X7)))))))))))))) \end{aligned}$$