

t13_nattra_1

(TMMa7dAdYqoyBKTVhxxH5pDrWSqLVGh9Q98)

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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 $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
 & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
 & X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
 & \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
 & X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
 & (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow \\
 & (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 \\
 & X5 (u1_struct_0 X0)) \Rightarrow (\neg (k2_cat_1 X0 X3 X4 \neq k1_xboole_0) \wedge ((k2_cat_1 \\
 & X0 X4 X5 \neq k1_xboole_0) \wedge (\neg \forall X6.(m1_cat_1 X6 X0 X3 X4) \Rightarrow (\forall X7. \\
 & (m1_cat_1 X7 X0 X4 X5) \Rightarrow (k9_cat_3 X0 X3 X5 X1 X2 (k5_cat_1 X0 X3 X4 X5 \\
 & X6 X7) = k5_cat_1 X1 (k8_cat_1 X0 X1 X2 X3) (k8_cat_1 X0 X1 X2 X4) (k8_cat_1 \\
 & X0 X1 X2 X5) (k9_cat_3 X0 X3 X4 X1 X2 X6) (k9_cat_3 X0 X4 X5 X1 X2 X7))))))))))
 \end{aligned}$$

(1)

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\ & \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\ & X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\ & (m2_cat_1 X2 X1 X0) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X1)) \Rightarrow \\ & (\forall X4.(m1_subset_1 X4 (u1_struct_0 X1)) \Rightarrow (\forall X5.(m1_subset_1 \\ & X5 (u1_struct_0 X1)) \Rightarrow (\neg(k2_cat_1 X1 X3 X4 \neq k1_xboole_0) \wedge ((k2_cat_1 \\ & X1 X4 X5 \neq k1_xboole_0) \wedge (\neg \forall X6.(m1_cat_1 X6 X1 X3 X4) \Rightarrow (\forall X7. \\ & (m1_cat_1 X7 X1 X4 X5) \Rightarrow (k9_cat_3 X1 X3 X5 X0 X2 (k5_cat_1 X1 X3 X4 X5 \\ & X6 X7) = k5_cat_1 X0 (k8_cat_1 X1 X0 X2 X3) (k8_cat_1 X1 X0 X2 X4) (k8_cat_1 \\ & X1 X0 X2 X5) (k9_cat_3 X1 X3 X4 X0 X2 X6) (k9_cat_3 X1 X4 X5 X0 X2 X7)))))))))) \end{aligned}$$