

t49_isocat_1
(TMNgrhSQiVN4RjfEcZkat2UfmqEG76xBe3h)

October 27, 2020

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 $r2_isocat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_isocat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_cat_1 : \iota \Rightarrow \iota$ be given. Let $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\
& ((v2_cat_1 X0) \wedge (v3_cat_1 X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 X0) \wedge \\
& ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge (\neg \\
& v11_struct_0 X1) \wedge (v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 X1) \wedge \\
& ((v5_cat_1 X1) \wedge (v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& (m1_isocat_1 X2 X0 X1) \Rightarrow (m2_cat_1 X2 X0 X1))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg \\
& v11_struct_0 X1) \wedge (v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow ((r2_isocat_1 \\
& X0 X1) \Rightarrow (\forall X2. (m2_cat_1 X2 X0 X1) \Rightarrow ((m1_isocat_1 X2 X0 X1) \Leftrightarrow \\
& (\exists X3. (m2_cat_1 X3 X1 X0) \wedge ((r3_nattr_1 X0 X0 (k9_cat_1 X0 \\
& X1 X0 X2 X3) (k10_cat_1 X0)) \wedge (r3_nattr_1 X1 X1 (k9_cat_1 X1 X0 X1 \\
& X3 X2) (k10_cat_1 X1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow ((r2_isocat_1 \\
& X0 X1) \Leftrightarrow (\exists X2.(m2_cat_1 X2 X0 X1) \wedge (\exists X3.(m2_cat_1 X3 \\
& X1 X0) \wedge ((r3_nattra_1 X0 X0 (k9_cat_1 X0 X1 X0 X2 X3) (k10_cat_1 X0)) \wedge \\
& (r3_nattra_1 X1 X1 (k9_cat_1 X1 X0 X1 X3 X2) (k10_cat_1 X1))))))
\end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow ((r2_isocat_1 \\
& X0 X1) \Rightarrow (\forall X2.(m1_isocat_1 X2 X0 X1) \Rightarrow (\exists X3.(m1_isocat_1 \\
& X3 X1 X0) \wedge ((r3_nattra_1 X0 X0 (k9_cat_1 X0 X1 X0 X2 X3) (k10_cat_1 \\
& X0)) \wedge (r3_nattra_1 X1 X1 (k9_cat_1 X1 X0 X1 X3 X2) (k10_cat_1 X1))))))
\end{aligned}$$