

t40_isocat_2

(TMXWEng4D1z1dDxs7BiyZzJPEuYDiYjmeby)

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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 $r1_isocat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k11_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v12_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k15_isocat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_cat_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 \\
 & X0) \wedge (v2_cat_1 X0) \wedge (v3_cat_1 X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 \\
 & X0) \wedge (v6_cat_1 X0) \wedge (l1_cat_1 X0)))) \wedge (((\neg v2_struct_0 X1) \wedge \\
 & ((\neg v11_struct_0 X1) \wedge (v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 \\
 & X1) \wedge (v5_cat_1 X1) \wedge (v6_cat_1 X1) \wedge (l1_cat_1 X1)))) \wedge ((\neg \\
 & v2_struct_0 X2) \wedge (\neg v11_struct_0 X2) \wedge (v2_cat_1 X2) \wedge (v3_cat_1 \\
 & X2) \wedge (v4_cat_1 X2) \wedge (v5_cat_1 X2) \wedge (v6_cat_1 X2) \wedge (l1_cat_1 \\
 & X2)))) \Rightarrow (v12_cat_1 (k15_isocat_2 X0 X1 X2) (k11_nattr_1 \\
 & X0 (k8_cat_2 X1 X2)) (k8_cat_2 (k11_nattr_1 X0 X1) (k11_nattr_1 \\
 & X0 X2)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\
 & ((v2_cat_1 X0) \wedge (v3_cat_1 X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 X0) \wedge \\
 & ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge ((\neg \\
 & v11_struct_0 X1) \wedge (v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 X1) \wedge \\
 & ((v5_cat_1 X1) \wedge (v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow ((\neg v2_struct_0 \\
 & (k8_cat_2 X0 X1)) \wedge (\neg v11_struct_0 (k8_cat_2 X0 X1)) \wedge (v2_cat_1 \\
 & (k8_cat_2 X0 X1)) \wedge (v3_cat_1 (k8_cat_2 X0 X1)) \wedge (v4_cat_1 (k8_cat_2 \\
 & X0 X1)) \wedge (v5_cat_1 (k8_cat_2 X0 X1)) \wedge (v6_cat_1 (k8_cat_2 X0 X1)) \wedge \\
 & (l1_cat_1 (k8_cat_2 X0 X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 \\
& X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 \\
& X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge \\
& ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \wedge (\neg \\
& v2_struct_0 X2) \wedge (\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))) \Rightarrow (m2_cat_1 (k15_isocat_2 X0 X1 X2) (k11_nattr_1 \\
& X0 (k8_cat_2 X1 X2)) (k8_cat_2 (k11_nattr_1 X0 X1) (k11_nattr_1 \\
& X0 X2)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\
& ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge \\
& ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge (\neg \\
& v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge \\
& ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow ((\neg v2_struct_0 \\
& (k11_nattr_1 X0 X1)) \wedge (\neg v11_struct_0 (k11_nattr_1 X0 X1)) \wedge \\
& ((v1_cat_1 (k11_nattr_1 X0 X1)) \wedge ((v2_cat_1 (k11_nattr_1 X0 \\
& X1)) \wedge ((v3_cat_1 (k11_nattr_1 X0 X1)) \wedge ((v4_cat_1 (k11_nattr_1 \\
& X0 X1)) \wedge ((v5_cat_1 (k11_nattr_1 X0 X1)) \wedge ((v6_cat_1 (k11_nattr_1 \\
& X0 X1)) \wedge (l1_cat_1 (k11_nattr_1 X0 X1)))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg \\
& v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow ((r1_isocat_1 \\
& X0 X1) \Leftrightarrow (\exists X2. (m2_cat_1 X2 X0 X1) \wedge (v12_cat_1 X2 X0 X1))))
\end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg \\
& v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge (\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))) \Rightarrow (r1_isocat_1 (k11_nattr_1 X0 (k8_cat_2 X1 X2)) (k8_cat_2 \\
& (k11_nattr_1 X0 X1) (k11_nattr_1 X0 X2))))))
\end{aligned}$$