

t29_isocat_2
(TMXG9Qru5SeRfc4y2A2nkEvEonuyEUV1NrU)

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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 $k11_nattrra_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k7_isocat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 \\
& X0) \wedge (v2_cat_1 X0) \wedge (v3_cat_1 X0) \wedge (v4_cat_1 X0) \wedge (v5_cat_1 \\
& X0) \wedge (v6_cat_1 X0) \wedge (l1_cat_1 X0)))) \wedge (((\neg v2_struct_0 X1) \wedge \\
& ((\neg v11_struct_0 X1) \wedge (v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 \\
& X1) \wedge (v5_cat_1 X1) \wedge (v6_cat_1 X1) \wedge (l1_cat_1 X1)))) \wedge (\neg \\
& v2_struct_0 X2) \wedge (\neg v11_struct_0 X2) \wedge (v2_cat_1 X2) \wedge (v3_cat_1 \\
& X2) \wedge (v4_cat_1 X2) \wedge (v5_cat_1 X2) \wedge (v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))) \Rightarrow (v12_cat_1 (k7_isocat_2 X0 X1 X2) (k11_nattrra_1 \\
& (k8_cat_2 X0 X1) X2) (k11_nattrra_1 X0 (k11_nattrra_1 X1 X2)))
\end{aligned} \tag{1}$$

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.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\
& X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\
& X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))\wedge(((\neg v2_struct_0 X1)\wedge \\
& ((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))\wedge((\neg \\
& v2_struct_0 X2)\wedge((\neg v11_struct_0 X2)\wedge((v2_cat_1 X2)\wedge((v3_cat_1 \\
& X2)\wedge((v4_cat_1 X2)\wedge((v5_cat_1 X2)\wedge((v6_cat_1 X2)\wedge(l1_cat_1 \\
& X2))))))\Rightarrow(m2_cat_1 (k7_isocat_2 X0 X1 X2) (k11_nattr_1 (\\
& k8_cat_2 X0 X1) X2) (k11_nattr_1 X0 (k11_nattr_1 X1 X2)))
\end{aligned} \tag{3}$$

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

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