

t38_isocat_1

(TMcTtkYuPBksgXBDCf2xiYFRiwuKchifENM)

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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 $m2_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k6_isocat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_cat_1 : \iota \Rightarrow \iota$ be given. Let $k6_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_isocat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_isocat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
 & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
 & X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
 & \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
 & X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\
 & (m2_cat_1 X2 X1 X0) \Rightarrow (\forall X3.(m2_cat_1 X3 X1 X0) \Rightarrow (\forall X4. \\
 & (m2_nattr_1 X4 X1 X0 X2 X3) \Rightarrow ((r2_nattr_1 X1 X0 X2 X3) \Rightarrow (r2_funct_2 \\
 & (u1_struct_0 X1) (u4_struct_0 X0) (k5_isocat_1 X1 X1 X0 X2 X3 (k10_cat_1 \\
 & X1) X4) X4))))))
 \end{aligned}$$

(1)

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X1 X2) \Rightarrow (r2_funct_2 (u1_struct_0 X0) (u4_struct_0 X2) (k4_isocat_1 \\
& X0 X1 X2 X3 X3 (k6_nattr_1 X0 X1 X3) X4) (k6_nattr_1 X0 X2 (k9_cat_1 \\
& X0 X1 X2 X3 X4))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow ((r2_nattr_1 \\
& X0 X1 X2 X3) \Rightarrow (\forall X4.(m2_nattr_1 X4 X0 X1 X2 X3) \Rightarrow ((r2_funct_2 \\
& (u1_struct_0 X0) (u4_struct_0 X1) (k7_nattr_1 X0 X1 X2 X3 X3 X4 (\\
& k6_nattr_1 X0 X1 X3)) X4) \wedge (r2_funct_2 (u1_struct_0 X0) (u4_struct_0 \\
& X1) (k7_nattr_1 X0 X1 X2 X2 X3 (k6_nattr_1 X0 X1 X2) X4) X4))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X1) \Rightarrow (\forall X5.(m2_cat_1 X5 X1 X2) \Rightarrow (\forall X6.(m2_cat_1 \\
& X6 X1 X2) \Rightarrow (((r2_nattr_1 X0 X1 X3 X4) \wedge (r2_nattr_1 X1 X2 X5 X6)) \Rightarrow \\
& (r2_nattr_1 X0 X2 (k9_cat_1 X0 X1 X2 X3 X5) (k9_cat_1 X0 X1 X2 X4 X6))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 \\ & X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\\ & \neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 \\ & X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 \\ & X1))))))))\wedge((m2_cat_1 X2 X0 X1)\wedge(m2_cat_1 X3 X0 X1)))\Rightarrow(r2_nattra_1 \\ & X0 X1 X2 X2) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow((r2_funct_2 X0 X1 X2 \\ & X3)\Leftrightarrow(X2 = X3)) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\ & X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\ & X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge \\ & ((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\ & X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\wedge(m2_cat_1 \\ & X2 X0 X1))\Rightarrow(k6_nattra_1 X0 X1 X2 = k3_nattra_1 X0 X1 X2) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 \\ & X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\\ & \neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 \\ & X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 \\ & X1))))))))\wedge((m2_cat_1 X2 X0 X1)\wedge(m2_cat_1 X3 X0 X1)))\Rightarrow(\forall X4. \\ & (m2_nattra_1 X4 X0 X1 X2 X3)\Rightarrow(m1_nattra_1 X4 X0 X1 X2 X3)) \end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 \\ & X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\\ & \neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 \\ & X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 \\ & X1))))))))\wedge((m2_cat_1 X2 X0 X1)\wedge(m2_cat_1 X3 X0 X1)))\Rightarrow(\forall X4. \\ & (m1_nattra_1 X4 X0 X1 X2 X3)\Rightarrow((v1_funct_1 X4)\wedge((v1_funct_2 X4 (\\ & u1_struct_0 X0) (u4_struct_0 X1))\wedge(m1_subset_1 X4 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X0) (u4_struct_0 X1)))))) \end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\
& X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 \\
& X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\\
& \neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 \\
& X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 \\
& X1))))))))\wedge(((\neg v2_struct_0 X2)\wedge((\neg v11_struct_0 X2)\wedge((v2_cat_1 \\
& X2)\wedge((v3_cat_1 X2)\wedge((v4_cat_1 X2)\wedge((v5_cat_1 X2)\wedge((v6_cat_1 \\
& X2)\wedge(l1_cat_1 X2))))))))\wedge((m2_cat_1 X3 X0 X1)\wedge(m2_cat_1 X4 X1 \\
& X2))))\Rightarrow(m2_cat_1 (k9_cat_1 X0 X1 X2 X3 X4) X0 X2)
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\
& X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\
& X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge \\
& ((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\wedge(m2_cat_1 \\
& X2 X0 X1)))\Rightarrow(m2_nattr_1 (k6_nattr_1 X0 X1 X2) X0 X1 X2 X2)
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& \forall X6.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\
& X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\
& X0)\wedge(l1_cat_1 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 \\
& X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 \\
& X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\wedge(((\neg v2_struct_0 X2)\wedge \\
& ((\neg v11_struct_0 X2)\wedge((v2_cat_1 X2)\wedge((v3_cat_1 X2)\wedge((v4_cat_1 \\
& X2)\wedge((v5_cat_1 X2)\wedge((v6_cat_1 X2)\wedge(l1_cat_1 X2))))))))\wedge((m2_cat_1 \\
& X3 X1 X2)\wedge((m2_cat_1 X4 X1 X2)\wedge((m2_cat_1 X5 X0 X1)\wedge(m2_nattr_1 \\
& X6 X1 X2 X3 X4))))))\Rightarrow(m2_nattr_1 (k5_isocat_1 X0 X1 X2 X3 X4 X5 X6) \\
& X0 X2 (k9_cat_1 X0 X1 X2 X5 X3) (k9_cat_1 X0 X1 X2 X5 X4))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& \forall X6.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\
& X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\
& X0)\wedge(l1_cat_1 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 \\
& X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 X1)\wedge((v5_cat_1 \\
& X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\wedge(((\neg v2_struct_0 X2)\wedge \\
& ((\neg v11_struct_0 X2)\wedge((v2_cat_1 X2)\wedge((v3_cat_1 X2)\wedge((v4_cat_1 \\
& X2)\wedge((v5_cat_1 X2)\wedge((v6_cat_1 X2)\wedge(l1_cat_1 X2))))))))\wedge((m2_cat_1 \\
& X3 X0 X1)\wedge((m2_cat_1 X4 X0 X1)\wedge((m2_nattra_1 X5 X0 X1 X3 X4)\wedge(m2_cat_1 \\
& X6 X1 X2))))))\Rightarrow(m2_nattra_1 (k4_isocat_1 X0 X1 X2 X3 X4 X5 X6) X0 \\
& X2 (k9_cat_1 X0 X1 X2 X3 X6) (k9_cat_1 X0 X1 X2 X4 X6))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\
& X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\
& X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge \\
& ((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\wedge(m2_cat_1 \\
& X2 X0 X1))\Rightarrow(m1_nattra_1 (k3_nattra_1 X0 X1 X2) X0 X1 X2 X2)
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\
& X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\
& X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(m2_cat_1 (k10_cat_1 X0) X0 X0)
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\
& X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\
& X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(\forall X1.((\neg v2_struct_0 X1)\wedge((\neg \\
& v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\Rightarrow(\forall X2. \\
& ((\neg v2_struct_0 X2)\wedge((\neg v11_struct_0 X2)\wedge((v2_cat_1 X2)\wedge((v3_cat_1 \\
& X2)\wedge((v4_cat_1 X2)\wedge((v5_cat_1 X2)\wedge((v6_cat_1 X2)\wedge(l1_cat_1 \\
& X2))))))))\Rightarrow(\forall X3.(m2_cat_1 X3 X0 X1)\Rightarrow(\forall X4.(m2_cat_1 \\
& X4 X0 X1)\Rightarrow(\forall X5.(m2_cat_1 X5 X1 X2)\Rightarrow(\forall X6.(m2_cat_1 \\
& X6 X1 X2)\Rightarrow(\forall X7.(m2_nattra_1 X7 X0 X1 X3 X4)\Rightarrow(\forall X8.(\\
& m2_nattra_1 X8 X1 X2 X5 X6)\Rightarrow(k6_isocat_1 X0 X1 X2 X3 X4 X5 X6 X7 X8 = k7_nattra_1 \\
& X0 X2 (k9_cat_1 X0 X1 X2 X3 X5) (k9_cat_1 X0 X1 X2 X4 X5) (k9_cat_1 X0 \\
& X1 X2 X4 X6) (k4_isocat_1 X0 X1 X2 X3 X4 X7 X5) (k5_isocat_1 X0 X1 X2 X5 \\
& X6 X4 X8))))))))))
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\ & \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\ & X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\ & (m2_cat_1 X2 X1 X0) \Rightarrow (\forall X3.(m2_cat_1 X3 X1 X0) \Rightarrow (\forall X4. \\ & (m2_nattra_1 X4 X1 X0 X2 X3) \Rightarrow ((r2_nattra_1 X1 X0 X2 X3) \Rightarrow (r2_funct_2 \\ & (u1_struct_0 X1) (u4_struct_0 X0) (k6_isocat_1 X1 X1 X0 (k10_cat_1 \\ & X1) (k10_cat_1 X1) X2 X3 (k6_nattra_1 X1 X1 (k10_cat_1 X1)) X4 X4)))))) \end{aligned}$$