

l48_isocat_2 (TMcSTvCbGi- haX6DrpzLAWcTMf95YdFeK6bu)

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 $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k14_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_isocat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_cat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_cat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg \\
& v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow ((r1_nattr_1 \\
& X0 X1 X2 X3) \Rightarrow (\forall X4.(m1_nattr_1 X4 X0 X1 X2 X3) \Rightarrow (\forall X5. \\
& (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (k4_nattr_1 X0 X1 X2 X3 X4 X5 \in \\
& k2_cat_1 X1 (k8_cat_1 X0 X1 X2 X5) (k8_cat_1 X0 X1 X3 X5))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X2) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0) \Rightarrow (k8_cat_1 \\
& X0 (k8_cat_2 X1 X2) (k8_isocat_2 X0 X1 X2 X3 X4) X5 = k9_cat_2 X1 X2 (\\
& k8_cat_1 X0 X1 X3 X5) (k8_cat_1 X0 X2 X4 X5))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X0) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X1) \Rightarrow \\
& (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1) \Rightarrow (\forall X6.(m1_subset_1 \\
& X6 (u4_struct_0 X0) \Rightarrow (\forall X7.(m1_subset_1 X7 (u4_struct_0 \\
& X1) \Rightarrow (((X6 \in k2_cat_1 X0 X2 X3) \wedge (X7 \in k2_cat_1 X1 X4 X5)) \Rightarrow (k10_cat_2 \\
& X0 X1 X6 X7 \in k2_cat_1 (k8_cat_2 X0 X1) (k9_cat_2 X0 X1 X2 X4) (k9_cat_2 \\
& X0 X1 X3 X5))))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X1) \Rightarrow (\forall X5.(m2_cat_1 X5 X0 X2) \Rightarrow (\forall X6.(m2_cat_1 \\
& X6 X0 X2) \Rightarrow ((r1_nattra_1 X0 X1 X3 X4) \wedge (r1_nattra_1 X0 X2 X5 X6)) \Rightarrow \\
& (\forall X7.(m1_nattra_1 X7 X0 X1 X3 X4) \Rightarrow (\forall X8.(m1_nattra_1 \\
& X8 X0 X2 X5 X6) \Rightarrow (\forall X9.(m1_subset_1 X9 (u1_struct_0 X0)) \Rightarrow (\\
& k3_funct_2 (u1_struct_0 X0) (k2_zfmisc_1 (u4_struct_0 X1) (u4_struct_0 \\
& X2)) (k14_funct_3 (u1_struct_0 X0) (u4_struct_0 X1) (u4_struct_0 \\
& X2) X7 X8) X9 = k10_cat_2 X1 X2 (k4_nattra_1 X0 X1 X3 X4 X7 X9) (k4_nattra_1 \\
& X0 X2 X5 X6 X8 X9))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\
& X0) \wedge (l1_cat_1 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 \\
& X2 (u1_struct_0 X0)))) \Rightarrow (\forall X3.(m1_cat_1 X3 X0 X1 X2) \Rightarrow (m1_subset_1 \\
& X3 (u4_struct_0 X0)))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 \\
& X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0))))))) \wedge (((\\
& \neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 \\
& X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 \\
& X1))))))) \wedge ((m2_cat_1 X2 X0 X1) \wedge (m1_subset_1 X3 (u1_struct_0 \\
& X0)))) \Rightarrow (m1_subset_1 (k8_cat_1 X0 X1 X2 X3) (u1_struct_0 X1))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 \\
& X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 \\
& X0))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 \\
& X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 \\
& X1) \wedge (l1_cat_1 X1))))))) \wedge ((m2_cat_1 X2 X0 X1) \wedge ((m2_cat_1 X3 X0 \\
& X1) \wedge ((m1_nattra_1 X4 X0 X1 X2 X3) \wedge (m1_subset_1 X5 (u1_struct_0 \\
& X0)))))) \Rightarrow (m1_cat_1 (k4_nattra_1 X0 X1 X2 X3 X4 X5) X1 (k8_cat_1 \\
& X0 X1 X2 X5) (k8_cat_1 X0 X1 X3 X5))
\end{aligned} \tag{7}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X1) \Rightarrow (\forall X5.(m2_cat_1 X5 X0 X2) \Rightarrow (\forall X6.(m2_cat_1 \\
& X6 X0 X2) \Rightarrow (((r1_nattra_1 X0 X1 X3 X4) \wedge (r1_nattra_1 X0 X2 X5 X6)) \Rightarrow \\
& (\forall X7.(m1_nattra_1 X7 X0 X1 X3 X4) \Rightarrow (\forall X8.(m1_nattra_1 \\
& X8 X0 X2 X5 X6) \Rightarrow (\forall X9.(m1_subset_1 X9 (u1_struct_0 X0)) \Rightarrow (\\
& k3_funct_2 (u1_struct_0 X0) (k2_zfmisc_1 (u4_struct_0 X1) (u4_struct_0 \\
& X2)) (k14_funct_3 (u1_struct_0 X0) (u4_struct_0 X1) (u4_struct_0 \\
& X2) X7 X8) X9 \in k2_cat_1 (k8_cat_2 X1 X2) (k8_cat_1 X0 (k8_cat_2 X1 \\
& X2) (k8_isocat_2 X0 X1 X2 X3 X5) X9) (k8_cat_1 X0 (k8_cat_2 X1 X2) (\\
& k8_isocat_2 X0 X1 X2 X4 X6) X9)))))))))))))
\end{aligned}$$