

t30_isocat_2

(TMQrm2fNGfhGTnCoXVH3dgadeUvf8sYHMLu)

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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 $r2_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_isocat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ 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 $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_nattr_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_isocat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3)))) \Rightarrow (k1_partfun1 X0 X1 X2 X3 X4 X5 = k3_relat_1 X4 X5) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\ & X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 \\ & X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge (((\\ & \neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 \\ & X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 \\ & X1)))))))) \wedge ((m2_cat_1 X2 X0 X1) \wedge (m2_cat_1 X3 X0 X1))) \Rightarrow (\forall X4. \\ & (m2_nattr_1 X4 X0 X1 X2 X3) \Rightarrow (m1_nattr_1 X4 X0 X1 X2 X3)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\
& ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge \\
& ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge ((\neg \\
& v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge \\
& ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u4_struct_0 \\
& X0) (u4_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u4_struct_0 X0) (u4_struct_0 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 \\
& X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge (((\\
& \neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 \\
& X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 \\
& X1)))))) \wedge ((m2_cat_1 X2 X0 X1) \wedge (m2_cat_1 X3 X0 X1))) \Rightarrow (\forall X4. \\
& (m1_nattra_1 X4 X0 X1 X2 X3) \Rightarrow ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (\\
& u1_struct_0 X0) (u4_struct_0 X1)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u4_struct_0 X1))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1. (((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3. (m2_cat_1 X3 X0 X1) \Rightarrow ((r2_nattra_1 \\
& X0 X1 X2 X3) \Leftrightarrow ((r1_nattra_1 X0 X1 X2 X3) \wedge (\exists X4. (m1_nattra_1 \\
& X4 X0 X1 X2 X3) \wedge (\forall X5. (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\\
& \forall X6. (m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow ((k2_cat_1 X0 X5 \\
& X6 \neq k1_xboole_0) \Rightarrow (\forall X7. (m1_cat_1 X7 X0 X5 X6) \Rightarrow (k5_cat_1 \\
& X1 (k8_cat_1 X0 X1 X2 X5) (k8_cat_1 X0 X1 X2 X6) (k8_cat_1 X0 X1 X3 X6) \\
& (k9_cat_3 X0 X5 X6 X1 X2 X7) (k4_nattra_1 X0 X1 X2 X3 X4 X6) = k5_cat_1 \\
& X1 (k8_cat_1 X0 X1 X2 X5) (k8_cat_1 X0 X1 X3 X5) (k8_cat_1 X0 X1 X3 X6) \\
& (k4_nattra_1 X0 X1 X2 X3 X4 X5) (k9_cat_3 X0 X5 X6 X1 X3 X7))))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X1) \Rightarrow ((r2_nattra_1 X0 X1 X3 X4) \Rightarrow (\forall X5.(m2_nattra_1 X5 \\
& X0 X1 X3 X4) \Rightarrow (\forall X6.(m2_cat_1 X6 X1 X2) \Rightarrow (k4_isocat_1 X0 X1 X2 \\
& X3 X4 X5 X6 = k2_isocat_1 X0 X1 X2 X3 X4 X5 X6))))))))) \tag{6}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X1) \Rightarrow ((r1_nattra_1 X0 X1 X3 X4) \Rightarrow (\forall X5.(m1_nattra_1 X5 \\
& X0 X1 X3 X4) \Rightarrow (\forall X6.(m2_cat_1 X6 X1 X2) \Rightarrow (k2_isocat_1 X0 X1 X2 \\
& X3 X4 X5 X6 = k1_partfun1 (u1_struct_0 X0) (u4_struct_0 X1) (u4_struct_0 \\
& X1) (u4_struct_0 X2) X5 X6))))))))) \tag{7}
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_cat_1 X2) \wedge ((v3_cat_1 \\
& X2) \wedge ((v4_cat_1 X2) \wedge ((v5_cat_1 X2) \wedge ((v6_cat_1 X2) \wedge (l1_cat_1 \\
& X2)))))))) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4.(m2_cat_1 \\
& X4 X0 X1) \Rightarrow (\forall X5.(m2_cat_1 X5 X1 X2) \Rightarrow ((r2_nattra_1 X0 X1 X3 \\
& X4) \Rightarrow (\forall X6.(m2_nattra_1 X6 X0 X1 X3 X4) \Rightarrow (k4_isocat_1 X0 X1 \\
& X2 X3 X4 X6 X5 = k3_relat_1 X6 X5)))))))))
\end{aligned}$$