

t44_ens_1

(TMQL5VV2nbHUKnRUYjxGB8GCvSoZmqg1XDi)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k18_ens_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_partfun1 : \iota \Rightarrow \iota$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k17_ens_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ 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 $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow ((k3_graph_1 X0 (k4_cat_1 X0 X1) = X1) \wedge (k4_graph_1 X0 (k4_cat_1 \\ & X0 X1) = X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k17_ens_1 \\ & X0 X1 (k4_cat_1 X0 X2) = k6_partfun1 (k2_cat_1 X0 X1 X2)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_cat_1 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (k2_cat_1 \\ & X0 (k3_graph_1 X0 X1) (k4_graph_1 X0 X1) \neq k1_xboole_0)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_cat_1 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow ((X1 \in k2_cat_1 X0 X2 X3) \Leftrightarrow ((k3_graph_1 X0 X1 = \\ & X2) \wedge (k4_graph_1 X0 X1 = X3)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge \\ & ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge (m1_subset_1 X1 (u1_struct_0 \\ & X0))) \Rightarrow (k3_graph_1 X0 (k4_cat_1 X0 X1) = X1) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ & X0) \wedge (l1_cat_1 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 \\ & X2 (u1_struct_0 X0)))) \Rightarrow (\forall X3.(m1_cat_1 X3 X0 X1 X2) \Rightarrow (m1_subset_1 \\ & X3 (u4_struct_0 X0))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \wedge (m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (m1_cat_1 (k4_cat_1 X0 X1) X0 X1 X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ & X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 \\ & X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge ((m1_subset_1 X1 (u1_struct_0 \\ & X0)) \wedge (m1_subset_1 X2 (u4_struct_0 X0))) \Rightarrow ((v1_funct_1 (k18_ens_1 \\ & X0 X1 X2)) \wedge ((v1_funct_2 (k18_ens_1 X0 X1 X2) (k2_cat_1 X0 (k4_graph_1 \\ & X0 X2) X1) (k2_cat_1 X0 (k3_graph_1 X0 X2) X1)) \wedge (m1_subset_1 (k18_ens_1 \\ & X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k2_cat_1 X0 (k4_graph_1 X0 \\ & X2) X1) (k2_cat_1 X0 (k3_graph_1 X0 X2) X1)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ & X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 \\ & X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge ((m1_subset_1 X1 (u1_struct_0 \\ & X0)) \wedge (m1_subset_1 X2 (u4_struct_0 X0))) \Rightarrow ((v1_funct_1 (k17_ens_1 \\ & X0 X1 X2)) \wedge ((v1_funct_2 (k17_ens_1 X0 X1 X2) (k2_cat_1 X0 X1 (k3_graph_1 \\ & X0 X2)) (k2_cat_1 X0 X1 (k4_graph_1 X0 X2))) \wedge (m1_subset_1 (k17_ens_1 \\ & X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k2_cat_1 X0 X1 (k3_graph_1 \\ & X0 X2)) (k2_cat_1 X0 X1 (k4_graph_1 X0 X2)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_cat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k2_cat_1 X0 X1 X2 \neq k1_xboole_0) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (u4_struct_0 X0)) \Rightarrow ((m1_cat_1 X3 X0 \\
& X1 X2) \Leftrightarrow (X3 \in k2_cat_1 X0 X1 X2))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u4_struct_0 X0)) \Rightarrow (\forall X3. \\
& ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_cat_1 X0 (k4_graph_1 X0 X2) \\
& X1) (k2_cat_1 X0 (k3_graph_1 X0 X2) X1)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& k2_zfmisc_1 (k2_cat_1 X0 (k4_graph_1 X0 X2) X1) (k2_cat_1 X0 (k3_graph_1 \\
& X0 X2) X1)))))) \Rightarrow ((X3 = k18_ens_1 X0 X1 X2) \Leftrightarrow (\forall X4.(m1_subset_1 \\
& X4 (u4_struct_0 X0)) \Rightarrow ((X4 \in k2_cat_1 X0 (k4_graph_1 X0 X2) X1) \Rightarrow (\\
& k1_funct_1 X3 X4 = k1_cat_1 X0 X2 X4))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u4_struct_0 X0)) \Rightarrow (\forall X3. \\
& ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_cat_1 X0 X1 (k3_graph_1 X0 \\
& X2) (k2_cat_1 X0 X1 (k4_graph_1 X0 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& k2_zfmisc_1 (k2_cat_1 X0 X1 (k3_graph_1 X0 X2)) (k2_cat_1 X0 X1 \\
& k4_graph_1 X0 X2)))))) \Rightarrow ((X3 = k17_ens_1 X0 X1 X2) \Leftrightarrow (\forall X4. \\
& (m1_subset_1 X4 (u4_struct_0 X0)) \Rightarrow ((X4 \in k2_cat_1 X0 X1 (k3_graph_1 \\
& X0 X2)) \Rightarrow (k1_funct_1 X3 X4 = k1_cat_1 X0 X4 X2))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v5_cat_1 \\
& X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_cat_1 X2 X0 X1 X1) \Rightarrow ((X2 = k4_cat_1 \\
& X0 X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (((k2_cat_1 \\
& X0 X1 X3 \neq k1_xboole_0) \Rightarrow (\forall X4.(m1_cat_1 X4 X0 X1 X3) \Rightarrow (k1_cat_1 \\
& X0 X2 X4 = X4))) \wedge ((k2_cat_1 X0 X3 X1 \neq k1_xboole_0) \Rightarrow (\forall X4.(\\
& m1_cat_1 X4 X0 X3 X1) \Rightarrow (k1_cat_1 X0 X4 X2 = X4))))))
\end{aligned} \tag{13}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k18_ens_1 \\ & X0 X2 (k4_cat_1 X0 X1) = k6_partfun1 (k2_cat_1 X0 X1 X2)))) \end{aligned}$$