

t29_yellow20 (TM-
Mvhp2XmraCYFp2BvggJtD4h4xVboUQAzY)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_altcat_1 : \iota \Rightarrow o$ be given. Let $v11_altcat_1 : \iota \Rightarrow o$ be given. Let $v12_altcat_1 : \iota \Rightarrow o$ be given. Let $l2_altcat_1 : \iota \Rightarrow o$ be given. Let $v3_altcat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_altcat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v15_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k6_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_yellow20 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_altcat_2 : \iota \Rightarrow o$ be given. Let $v8_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k13_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v9_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v13_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v12_functor_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\
 & ((\neg v2_struct_0 X1) \wedge ((v1_altcat_2 X1) \wedge (l2_altcat_1 X1))) \Rightarrow (\forall X2. \\
 & ((\neg v2_struct_0 X2) \wedge ((v1_altcat_2 X2) \wedge (l2_altcat_1 X2)))) \Rightarrow (\forall X3. \\
 & ((v8_functor_0 X3 X0 X1) \wedge ((v10_functor_0 X3 X0 X1) \wedge (l2_functor_0 \\
 & X3 X0 X1))) \Rightarrow (\forall X4.((v8_functor_0 X4 X1 X2) \wedge ((v10_functor_0 \\
 & X4 X1 X2) \wedge (l2_functor_0 X4 X1 X2)))) \Rightarrow (\forall X5.(m1_subset_1 X5 \\
 & (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow \\
 & (\forall X7.(m1_subset_1 X7 (k1_altcat_1 X0 X5 X6)) \Rightarrow ((k1_altcat_1 \\
 & X0 X5 X6 \neq k1_xboole_0) \Rightarrow (k6_functor_0 X0 X2 (k13_functor_0 X0 X1 X2 \\
 & X3 X4) X5 X6 X7 = k6_functor_0 X1 X2 X4 (k3_functor_0 X0 X1 X3 X5) (k3_functor_0 \\
 & X0 X1 X3 X6) (k6_functor_0 X0 X1 X3 X5 X6 X7)))))))))) \\
 & \tag{1}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& \quad X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v3_altcat_2 X1 X0) \wedge (m1_altcat_2 \\
& \quad X1 X0)))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X1)) \Rightarrow ((k1_altcat_1 X1 X2 X3 \neq k1_xboole_0) \Rightarrow \\
& \quad (\forall X4.(m1_subset_1 X4 (k1_altcat_1 X1 X2 X3)) \Rightarrow (k6_functor0 \\
& \quad \quad X1 X0 (k10_functor0 X0 X1) X2 X3 X4 = X4))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (m1_altcat_2 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
& \quad X2 (u1_struct_0 X1)) \Rightarrow (k3_functor0 X1 X0 (k10_functor0 X0 X1) X2 = \\
& \quad \quad X2)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& \quad X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge \\
& \quad (l2_altcat_1 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge \\
& \quad ((v11_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))))) \wedge \\
& \quad (((\neg v2_struct_0 X2) \wedge ((v2_altcat_1 X2) \wedge ((v3_altcat_2 X2 X0) \wedge \\
& \quad (m1_altcat_2 X2 X0)))))) \wedge ((v15_functor0 X3 X0 X1) \wedge (m2_functor0 \\
& \quad X3 X0 X1)))) \Rightarrow (k4_yellow20 X0 X1 X2 X3 = k14_functor0 X0 X1 X2 X3)
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& \quad ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \wedge \\
& \quad (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v3_altcat_2 X1 X0) \wedge (\\
& \quad m1_altcat_2 X1 X0)))))) \Rightarrow ((v9_functor0 (k10_functor0 X0 X1) X1 X0) \wedge \\
& \quad (v10_functor0 (k10_functor0 X0 X1) X1 X0))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \wedge \\
& ((\neg v2_struct_0 X1) \wedge (m1_altcat_2 X1 X0))) \Rightarrow ((v8_functor0 (k10_functor0 \\
& \quad X0 X1) X1 X0) \wedge (v9_functor0 (k10_functor0 X0 X1) X1 X0))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& \quad ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& \quad ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1))) \Rightarrow (\forall X2.(m2_functor0 \\
& \quad \quad X2 X0 X1) \Rightarrow (l2_functor0 X2 X0 X1))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0.(l2_altcat_1 X0) \Rightarrow (\forall X1.(m1_altcat_2 X1 X0) \Rightarrow (l2_altcat_1 X1)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((l2_altcat_1 X0) \wedge (m1_altcat_2 X1 X0)) \Rightarrow ((v9_functor0 (k10_functor0 X0 X1) X1 X0) \wedge (l2_functor0 (k10_functor0 X0 X1) X1 X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_altcat_2 X0) \wedge (l2_altcat_1 X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v1_altcat_2 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (m1_altcat_2 X2 X0)) \Rightarrow (\forall X3.(l2_functor0 X3 X0 X1) \Rightarrow (k14_functor0 X0 X1 X2 X3 = k13_functor0 X2 X0 X1 (k10_functor0 X0 X2) X3)))) \quad (10) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 X2 X0 X1) \Rightarrow ((v15_functor0 X2 X0 X1) \Rightarrow ((v10_functor0 X2 X0 X1) \wedge (v13_functor0 X2 X0 X1)))) \quad (11) \end{aligned}$$

Assume the following.

$$\forall X0.(l2_altcat_1 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v12_altcat_1 X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge (v1_altcat_2 X0))) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 X2 X0 X1) \Rightarrow ((v8_functor0 X2 X0 X1) \wedge (v12_functor0 X2 X0 X1))) \quad (13) \end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\ & \quad X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\ \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\ & \quad X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge ((\\ v2_altcat_1 X2) \wedge ((v3_altcat_2 X2 X0) \wedge (m1_altcat_2 X2 X0)))) \Rightarrow \\ & (\forall X3.((v15_functor0 X3 X0 X1) \wedge (m2_functor0 X3 X0 X1)) \Rightarrow (\\ \forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 \\ & \quad X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 \\ & \quad X2)) \Rightarrow (\forall X7.(m1_subset_1 X7 (u1_struct_0 X2)) \Rightarrow (((X6 = X4) \wedge \\ & (X7 = X5)) \Rightarrow ((k1_altcat_1 X2 X6 X7 = k1_xboole_0) \vee (\forall X8.(m1_subset_1 \\ & \quad X8 (k1_altcat_1 X0 X4 X5)) \Rightarrow (\forall X9.(m1_subset_1 X9 (k1_altcat_1 \\ & \quad X2 X6 X7)) \Rightarrow ((X9 = X8) \Rightarrow (k6_functor0 X2 X1 (k4_yellow20 X0 X1 X2 X3) \\ & \quad X6 X7 X9 = k6_functor0 X0 X1 X3 X4 X5 X8))))))))))))) \end{aligned}$$