

t15_yellow18

(TMTnc9nUX55FBkjQCXEuHNKBEYoJgc5EPVH)

October 27, 2020

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 $r2_yellow18 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v21_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_yellow18 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v9_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v16_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_altcat_1 : \iota \Rightarrow \iota$ be given. Let $k2_funct_4 : \iota \Rightarrow \iota$ be given. Let $k4_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_altcat_1 : \iota \Rightarrow \iota$ be given. Let $k1_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge (l2_altcat_1 \\
 & X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge (l2_altcat_1 \\
 & X1))) \Rightarrow ((r2_yellow18 X0 X1) \Leftrightarrow ((u1_struct_0 X1 = u1_struct_0 X0) \wedge \\
 & (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\
 & X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
 & X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (\forall X6. \\
 & (m1_subset_1 X6 (u1_struct_0 X1)) \Rightarrow (\forall X7.(m1_subset_1 X7 \\
 & (u1_struct_0 X1)) \Rightarrow (((X5 = X2) \wedge ((X6 = X3) \wedge (X7 = X4))) \Rightarrow ((k1_altcat_1 \\
 & X0 X2 X3 = k1_altcat_1 X1 X6 X5) \wedge (\neg(k1_altcat_1 X0 X2 X3 \neq k1_xboole_0)) \wedge \\
 & ((k1_altcat_1 X0 X3 X4 \neq k1_xboole_0) \wedge (\exists X8.(m1_subset_1 \\
 & X8 (k1_altcat_1 X0 X2 X3)) \wedge (\exists X9.(m1_subset_1 X9 (k1_altcat_1 \\
 & X0 X3 X4)) \wedge (\exists X10.(m1_subset_1 X10 (k1_altcat_1 X1 X6 X5)) \wedge \\
 & (\exists X11.(m1_subset_1 X11 (k1_altcat_1 X1 X7 X6)) \wedge ((X10 = X8) \wedge \\
 & ((X11 = X9) \wedge (k5_altcat_1 X1 X7 X6 X5 X11 X10 \neq k5_altcat_1 X0 X2 X3 X4 \\
 & X8 X9)))))))))))))))))
 \end{aligned}$$

(1)

Assume the following.

$$\begin{aligned}
& \forall X0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota. \forall X1 : \iota \Rightarrow \iota. \forall X2. \forall X3. \\
& \forall X4. ((\forall X5. (m1_subset_1 X5 (u1_struct_0 X4)) \Rightarrow (k3_functor0 \\
& X4 X3 X2 X5 = X1 X5)) \wedge ((\forall X5. (m1_subset_1 X5 (u1_struct_0 X4)) \Rightarrow \\
& (\forall X6. (m1_subset_1 X6 (u1_struct_0 X4)) \Rightarrow ((k1_altcat_1 \\
& X4 X5 X6 \neq k1_xboole_0) \Rightarrow (\forall X7. (m1_subset_1 X7 (k1_altcat_1 \\
& X4 X5 X6) \Rightarrow (k8_functor0 X4 X3 X2 X5 X6 X7 = X0 X5 X6 X7)))))) \wedge ((\forall X5. \\
& (m1_subset_1 X5 (u1_struct_0 X4)) \Rightarrow (\forall X6. (m1_subset_1 X6 \\
& (u1_struct_0 X4)) \Rightarrow ((X1 X5 = X1 X6) \Rightarrow (X5 = X6)))))) \wedge ((\forall X5. (m1_subset_1 \\
& X5 (u1_struct_0 X4)) \Rightarrow (\forall X6. (m1_subset_1 X6 (u1_struct_0 \\
& X4)) \Rightarrow ((k1_altcat_1 X4 X5 X6 \neq k1_xboole_0) \Rightarrow (\forall X7. (m1_subset_1 \\
& X7 (k1_altcat_1 X4 X5 X6) \Rightarrow (\forall X8. (m1_subset_1 X8 (k1_altcat_1 \\
& X4 X5 X6) \Rightarrow ((X0 X5 X6 X7 = X0 X5 X6 X8) \Rightarrow (X7 = X8)))))) \wedge (\forall X5. \\
& (m1_subset_1 X5 (u1_struct_0 X3)) \Rightarrow (\forall X6. (m1_subset_1 X6 \\
& (u1_struct_0 X3)) \Rightarrow ((k1_altcat_1 X3 X5 X6 \neq k1_xboole_0) \Rightarrow (\forall X7. \\
& (m1_subset_1 X7 (k1_altcat_1 X3 X5 X6) \Rightarrow (\exists X8. (m1_subset_1 \\
& X8 (u1_struct_0 X4)) \wedge (\exists X9. (m1_subset_1 X9 (u1_struct_0 \\
& X4)) \wedge (\exists X10. (m1_subset_1 X10 (k1_altcat_1 X4 X8 X9)) \wedge ((\\
& X6 = X1 X8) \wedge ((X5 = X1 X9) \wedge ((k1_altcat_1 X4 X8 X9 \neq k1_xboole_0) \wedge (X7 = \\
& X0 X8 X9 X10)))))))))) \Rightarrow (v21_functor0 X2 X4 X3)
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \wedge \\
& ((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((\\
& v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow ((v9_functor0 (k2_yellow18 \\
& X0 X1) X0 X1) \wedge ((v16_functor0 (k2_yellow18 X0 X1) X0 X1) \wedge (m2_functor0 \\
& (k2_yellow18 X0 X1) X0 X1)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1. ((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow ((r2_yellow18 X0 X1) \Rightarrow (\forall X2. (\\
& (v9_functor0 X2 X0 X1) \wedge ((v16_functor0 X2 X0 X1) \wedge (m2_functor0 X2 \\
& X0 X1))) \Rightarrow ((X2 = k2_yellow18 X0 X1) \Leftrightarrow ((\forall X3. (m1_subset_1 X3 \\
& (u1_struct_0 X0)) \Rightarrow (k3_functor0 X0 X1 X2 X3 = X3)) \wedge (\forall X3. (\\
& m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 \\
& (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X3 X4 \neq k1_xboole_0) \Rightarrow (\forall X5. \\
& (m1_subset_1 X5 (k1_altcat_1 X0 X3 X4)) \Rightarrow (k8_functor0 X0 X1 X2 X3 \\
& X4 X5 = X5))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l2_altcat_1 X1)) \Rightarrow ((r2_yellow18 X0 X1) \Leftrightarrow (\\
& (u1_struct_0 X1 = u1_struct_0 X0) \wedge ((u1_altcat_1 X1 = k2_funct_4 \\
& (u1_altcat_1 X0)) \wedge (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 \\
& X4 (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 X1)) \Rightarrow (\forall X7. \\
& (m1_subset_1 X7 (u1_struct_0 X1)) \Rightarrow (((X5 = X2) \wedge ((X6 = X3) \wedge (X7 = X4))) \Rightarrow \\
& (k4_altcat_1 (u1_struct_0 X1) (u1_altcat_1 X1) (u2_altcat_1 X1) \\
& X5 X6 X7 = k1_functor0 (k1_binop_1 (u1_altcat_1 X0) X3 X2) (k1_binop_1 \\
& (u1_altcat_1 X0) X4 X3) (k1_binop_1 (u1_altcat_1 X0) X4 X2) (k4_altcat_1 \\
& (u1_struct_0 X0) (u1_altcat_1 X0) (u2_altcat_1 X0) X4 X3 X2)))))))))) \\
& \hspace{15em} (5)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow ((r2_yellow18 X0 X1) \Rightarrow (v21_functor0 \\
& (k2_yellow18 X0 X1) X0 X1))
\end{aligned}$$