

t22_yellow18 (TMQMVeMxhFbzSd- dgLpExwD6h3WDhCaFmM4p)

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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge (l2_altcat_1 \\
& X1))) \Rightarrow ((r2_yellow18 X0 X1) \Leftrightarrow ((u1_struct_0 X1 = u1_struct_0 X0) \wedge \\
& (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (\forall X6. \\
& (m1_subset_1 X6 (u1_struct_0 X1)) \Rightarrow (\forall X7.(m1_subset_1 X7 \\
& (u1_struct_0 X1)) \Rightarrow (((X5 = X2) \wedge ((X6 = X3) \wedge (X7 = X4))) \Rightarrow ((k1_altcat_1 \\
& X0 X2 X3 = k1_altcat_1 X1 X6 X5) \wedge (\neg(k1_altcat_1 X0 X2 X3 \neq k1_xboole_0)) \wedge \\
& ((k1_altcat_1 X0 X3 X4 \neq k1_xboole_0) \wedge (\exists X8.(m1_subset_1 \\
& X8 (k1_altcat_1 X0 X2 X3)) \wedge (\exists X9.(m1_subset_1 X9 (k1_altcat_1 \\
& X0 X3 X4)) \wedge (\exists X10.(m1_subset_1 X10 (k1_altcat_1 X1 X6 X5)) \wedge \\
& (\exists X11.(m1_subset_1 X11 (k1_altcat_1 X1 X7 X6)) \wedge ((X10 = X8) \wedge \\
& ((X11 = X9) \wedge (k5_altcat_1 X1 X7 X6 X5 X11 X10 \neq k5_altcat_1 X0 X2 X3 X4 \\
& X8 X9)))))))))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l2_altcat_1 X1)) \Rightarrow ((r2_yellow18 X0 X1) \Rightarrow (\\
& \forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (((X4 = X2) \wedge \\
& (X5 = X3)) \Rightarrow (k1_altcat_1 X0 X2 X3 = k1_altcat_1 X1 X5 X4)))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow (\neg(k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge ((k1_altcat_1 X0 X2 \\
& X1 \neq k1_xboole_0) \wedge (\exists X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\
& X1 X2)) \wedge ((v1_altcat_3 X3 X0 X1 X2) \wedge ((v2_altcat_3 X3 X0 X1 X2) \wedge (\neg \\
& (k5_altcat_1 X0 X1 X2 X1 X3 (k1_altcat_3 X0 X1 X2 X3) = k8_altcat_1 \\
& X0 X1) \wedge (k5_altcat_1 X0 X2 X1 X2 (k1_altcat_3 X0 X1 X2 X3) X3 = k8_altcat_1 \\
& X0 X2))))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow ((r2_yellow18 X0 X1) \Rightarrow (\forall X2.(\\
& m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X1)) \Rightarrow ((X2 = X3) \Rightarrow (k8_altcat_1 X0 X2 = k8_altcat_1 X1 \\
& X3))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow ((r2_yellow18 X0 X1) \Rightarrow (\forall X2.(\\
& m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X0)) \Rightarrow (\neg(k1_altcat_1 X0 X2 X3 \neq k1_xboole_0) \wedge ((k1_altcat_1 \\
& X0 X3 X2 \neq k1_xboole_0) \wedge (\exists X4.(m1_subset_1 X4 (u1_struct_0 \\
& X1)) \wedge (\exists X5.(m1_subset_1 X5 (u1_struct_0 X1)) \wedge ((X4 = X2) \wedge \\
& ((X5 = X3) \wedge (\exists X6.(m1_subset_1 X6 (k1_altcat_1 X0 X2 X3)) \wedge \\
& (\exists X7.(m1_subset_1 X7 (k1_altcat_1 X1 X5 X4)) \wedge ((X7 = X6) \wedge \\
& (\neg((v1_altcat_3 X6 X0 X2 X3) \Rightarrow (v2_altcat_3 X7 X1 X5 X4)) \wedge ((v2_altcat_3 \\
& X6 X0 X2 X3) \Rightarrow (v1_altcat_3 X7 X1 X5 X4))))))))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge \\
& (l2_altcat_1 X0)))))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge ((m1_subset_1 \\
& X2 (u1_struct_0 X0)) \wedge (m1_subset_1 X3 (k1_altcat_1 X0 X1 X2)))))) \Rightarrow \\
& (m1_subset_1 (k1_altcat_3 X0 X1 X2 X3) (k1_altcat_1 X0 X2 X1))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow (\neg(k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge ((k1_altcat_1 X0 X2 \\
& X1 \neq k1_xboole_0) \wedge (\exists X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\
& X1 X2)) \wedge ((v1_altcat_3 X3 X0 X1 X2) \wedge ((v2_altcat_3 X3 X0 X1 X2) \wedge (\neg \\
& \forall X4.(m1_subset_1 X4 (k1_altcat_1 X0 X2 X1)) \Rightarrow ((X4 = k1_altcat_3 \\
& X0 X1 X2 X3) \Leftrightarrow ((r1_altcat_3 X0 X2 X1 X4 X3) \wedge (r1_altcat_3 X0 X1 X2 X3 \\
& X4))))))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (k1_altcat_1 X0 X1 X2)) \Rightarrow (\forall X4.(m1_subset_1 X4 (k1_altcat_1 \\
& X0 X2 X1)) \Rightarrow ((r1_altcat_3 X0 X1 X2 X3 X4) \Leftrightarrow (k5_altcat_1 X0 X2 X1 X2 X4 \\
& X3 = k8_altcat_1 X0 X2))))))
\end{aligned} \tag{8}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow ((r2_yellow18 X0 X1) \Rightarrow (\forall X2.(\\
& m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X0)) \Rightarrow (\neg(k1_altcat_1 X0 X2 X3 \neq k1_xboole_0) \wedge ((k1_altcat_1 \\
& X0 X3 X2 \neq k1_xboole_0) \wedge (\exists X4.(m1_subset_1 X4 (u1_struct_0 \\
& X1)) \wedge (\exists X5.(m1_subset_1 X5 (u1_struct_0 X1)) \wedge ((X4 = X2) \wedge \\
& ((X5 = X3) \wedge (\exists X6.(m1_subset_1 X6 (k1_altcat_1 X0 X2 X3)) \wedge \\
& (\exists X7.(m1_subset_1 X7 (k1_altcat_1 X1 X5 X4)) \wedge ((X7 = X6) \wedge \\
& ((v1_altcat_3 X6 X0 X2 X3) \wedge ((v2_altcat_3 X6 X0 X2 X3) \wedge (k1_altcat_3 \\
& X1 X5 X4 X7 \neq k1_altcat_3 X0 X2 X3 X6))))))))))
\end{aligned}$$