

t8_functor2 (TMWAKAYsHanmveAXZRqM- SeYG39JfRk4Bad3)

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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 $v15_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xbool_0 : \iota$ 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 $k6_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
 & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
 & X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\
 & X2 X0 X1) \Rightarrow (\forall X3.(m2_functor0 X3 X0 X1) \Rightarrow (\forall X4.(m2_functor0 \\
 & X4 X0 X1) \Rightarrow (((r1_functor2 X0 X1 X2 X3) \wedge (r1_functor2 X0 X1 X3 X4)) \Rightarrow \\
 & (r1_functor2 X0 X1 X2 X4))))))
 \end{aligned}
 \tag{1}$$

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 (\forall X2.((v15_functor0 X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.((v15_functor0 X3 X0 X1) \wedge (m2_functor0 X3 X0 X1)) \Rightarrow (\forall X4.((v15_functor0 X4 X0 X1) \wedge (m2_functor0 X4 X0 X1)) \Rightarrow (((r1_functor2 X0 X1 X2 X3) \wedge (r1_functor2 X0 X1 X3 X4)) \Rightarrow (\forall X5.(m1_functor2 X5 X0 X1 X2 X3) \Rightarrow ((\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow (\forall X7.(m1_subset_1 X7 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X6 X7 \neq k1_xboole_0) \Rightarrow (\forall X8.(m1_subset_1 X8 (k1_altcat_1 X0 X6 X7)) \Rightarrow (k5_altcat_1 X1 (k3_functor0 X0 X1 X2 X6) (k3_functor0 X0 X1 X2 X7) (k3_functor0 X0 X1 X3 X7) (k6_functor0 X0 X1 X2 X6 X7 X8) (k2_functor2 X0 X1 X2 X3 X5 X7) = k5_altcat_1 X1 (k3_functor0 X0 X1 X2 X6) (k3_functor0 X0 X1 X3 X6) (k3_functor0 X0 X1 X3 X7) (k2_functor2 X0 X1 X2 X3 X5 X6) (k6_functor0 X0 X1 X3 X6 X7 X8)))))) \Rightarrow (\forall X6.(m1_functor2 X6 X0 X1 X3 X4) \Rightarrow ((\forall X7.(m1_subset_1 X7 (u1_struct_0 X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X7 X8 \neq k1_xboole_0) \Rightarrow (\forall X9.(m1_subset_1 X9 (k1_altcat_1 X0 X7 X8)) \Rightarrow (k5_altcat_1 X1 (k3_functor0 X0 X1 X3 X7) (k3_functor0 X0 X1 X3 X8) (k3_functor0 X0 X1 X4 X8) (k6_functor0 X0 X1 X3 X7 X8 X9) (k2_functor2 X0 X1 X3 X4 X6 X8) = k5_altcat_1 X1 (k3_functor0 X0 X1 X3 X7) (k3_functor0 X0 X1 X4 X7) (k3_functor0 X0 X1 X4 X8) (k2_functor2 X0 X1 X3 X4 X6 X7) (k6_functor0 X0 X1 X4 X7 X8 X9)))))) \Rightarrow (\forall X7.(m1_subset_1 X7 (u1_struct_0 X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X7 X8 \neq k1_xboole_0) \Rightarrow (\forall X9.(m1_subset_1 X9 (k1_altcat_1 X0 X7 X8)) \Rightarrow (k5_altcat_1 X1 (k3_functor0 X0 X1 X2 X7) (k3_functor0 X0 X1 X2 X8) (k3_functor0 X0 X1 X4 X8) (k6_functor0 X0 X1 X2 X7 X8 X9) (k2_functor2 X0 X1 X2 X4 (k3_functor2 X0 X1 X2 X3 X4 X5 X6) X8) = k5_altcat_1 X1 (k3_functor0 X0 X1 X2 X7) (k3_functor0 X0 X1 X4 X7) (k3_functor0 X0 X1 X4 X8) (k2_functor2 X0 X1 X2 X4 (k3_functor2 X0 X1 X2 X3 X4 X5 X6) X7) (k6_functor0 X0 X1 X4 X7 X8 X9)))))))))))))
\end{aligned}$$

(2)

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& \forall X6.(((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge ((m2_functor0 X2 X0 X1) \wedge ((m2_functor0 X3 X0 X1) \wedge ((m2_functor0 X4 X0 X1) \wedge ((m1_functor2 X5 X0 X1 X2 X3) \wedge (m1_functor2 X6 X0 X1 X3 X4)))))) \Rightarrow (m1_functor2 (k3_functor2 X0 X1 X2 X3 X4 X5 X6) X0 X1 X2 X4)
\end{aligned}$$

(3)

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v15_functor0 \\
& X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.((v15_functor0 X3 \\
& X0 X1) \wedge (m2_functor0 X3 X0 X1)) \Rightarrow ((r2_functor2 X0 X1 X2 X3) \Leftrightarrow ((r1_functor2 \\
& X0 X1 X2 X3) \wedge (\exists X4.(m1_functor2 X4 X0 X1 X2 X3) \wedge (\forall X5. \\
& (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 X6 \\
& (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X5 X6 \neq k1_xboole_0) \Rightarrow (\forall X7. \\
& (m1_subset_1 X7 (k1_altcat_1 X0 X5 X6)) \Rightarrow (k5_altcat_1 X1 (k3_functor0 \\
& X0 X1 X2 X5) (k3_functor0 X0 X1 X2 X6) (k3_functor0 X0 X1 X3 X6) (k6_functor0 \\
& X0 X1 X2 X5 X6 X7) (k2_functor2 X0 X1 X2 X3 X4 X6) = k5_altcat_1 X1 (k3_functor0 \\
& X0 X1 X2 X5) (k3_functor0 X0 X1 X3 X5) (k3_functor0 X0 X1 X3 X6) (k2_functor2 \\
& X0 X1 X2 X3 X4 X5) (k6_functor0 X0 X1 X3 X5 X6 X7)))))))))) \\
& \hspace{15em} (4)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg \\
& v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v15_functor0 X2 X0 X1) \wedge \\
& (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.((v15_functor0 X3 X0 X1) \wedge \\
& (m2_functor0 X3 X0 X1)) \Rightarrow (\forall X4.((v15_functor0 X4 X0 X1) \wedge (m2_functor0 \\
& X4 X0 X1)) \Rightarrow (((r2_functor2 X0 X1 X2 X3) \wedge (r2_functor2 X0 X1 X3 X4)) \Rightarrow \\
& (r2_functor2 X0 X1 X2 X4))))))
\end{aligned}$$