

l12_functor2

(TMJ43vFLrgEwQFbCa3AiATxqwhQxHcjNoeg)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_altcat_1 : \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_altcat_1 : \iota \Rightarrow o$ be given. Let $v1_altcat_2 : \iota \Rightarrow o$ be given. Let $v8_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v13_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v12_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\ & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\ & X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\ & X2 X0 X1) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (k2_functor2 \\ & X0 X1 X2 X2 (k1_functor2 X0 X1 X2) X3 = k8_altcat_1 X1 (k3_functor0 \\ & X0 X1 X2 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \Rightarrow \\ & (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2)) \Rightarrow (k5_altcat_1 \\ & X0 X1 X2 X2 X3 (k8_altcat_1 X0 X2) = X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\ & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\ & X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v15_functor0 \\ & X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (\\ & u1_struct_0 X0)) \Rightarrow (k6_functor0 X0 X1 X2 X3 X3 (k8_altcat_1 X0 X3) = \\ & k8_altcat_1 X1 (k3_functor0 X0 X1 X2 X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\ & ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge \\ & ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\ & X2 X0 X1) \Rightarrow (l2_functor0 X2 X0 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l2_altcat_1 X0) \Rightarrow (l1_altcat_1 X0) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge \\ & (l2_altcat_1 X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 \\ & (k8_altcat_1 X0 X1) (k1_altcat_1 X0 X1 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_altcat_1 X0)) \Rightarrow ((v1_altcat_2 \\ & X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_altcat_1 \\ & X0 X1 X1 \neq k1_xboole_0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge (l2_altcat_1 \\ & X0))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v1_altcat_2 X1) \wedge (l2_altcat_1 \\ & X1))) \Rightarrow (\forall X2. ((v8_functor0 X2 X0 X1) \wedge ((v10_functor0 X2 X0 \\ & X1) \wedge (l2_functor0 X2 X0 X1))) \Rightarrow ((v13_functor0 X2 X0 X1) \Leftrightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow \\ & (\neg (k1_altcat_1 X0 X3 X4 \neq k1_xboole_0)) \wedge ((k1_altcat_1 X0 X4 X5 \neq k1_xboole_0) \wedge \\ & (\neg \forall X6.(m1_subset_1 X6 (k1_altcat_1 X0 X3 X4)) \Rightarrow (\forall X7. \\ & (m1_subset_1 X7 (k1_altcat_1 X0 X4 X5)) \Rightarrow (k6_functor0 X0 X1 X2 X3 \\ & X5 (k5_altcat_1 X0 X3 X4 X5 X6 X7) = k5_altcat_1 X1 (k3_functor0 X0 \\ & X1 X2 X3) (k3_functor0 X0 X1 X2 X4) (k3_functor0 X0 X1 X2 X5) (k6_functor0 \\ & X0 X1 X2 X3 X4 X6) (k6_functor0 X0 X1 X2 X4 X5 X7)))))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_altcat_1 X0 X1 X1)) \Rightarrow ((X2 = k8_altcat_1 X0 X1) \Leftrightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 \\
& X0 X1 X3 \neq k1_xboole_0) \Rightarrow (\forall X4.(m1_subset_1 X4 (k1_altcat_1 \\
& X0 X1 X3)) \Rightarrow (k5_altcat_1 X0 X1 X1 X3 X2 X4 = X4))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\
& X2 X0 X1) \Rightarrow ((v15_functor0 X2 X0 X1) \Rightarrow ((v10_functor0 X2 X0 X1) \wedge (v13_functor0 \\
& X2 X0 X1))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2_altcat_1 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v12_altcat_1 \\
& X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge (v1_altcat_2 X0)))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\
& X2 X0 X1) \Rightarrow ((v8_functor0 X2 X0 X1) \wedge (v12_functor0 X2 X0 X1)))
\end{aligned} \tag{12}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v15_functor0 \\
& X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.((v15_functor0 X3 \\
& X0 X1) \wedge (m2_functor0 X3 X0 X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 \\
& X0 X4 X5 \neq k1_xboole_0) \Rightarrow (\forall X6.(m1_subset_1 X6 (k1_altcat_1 \\
& X0 X4 X5)) \Rightarrow (k5_altcat_1 X1 (k3_functor0 X0 X1 X2 X4) (k3_functor0 \\
& X0 X1 X2 X5) (k3_functor0 X0 X1 X2 X5) (k6_functor0 X0 X1 X2 X4 X5 X6) \\
& (k2_functor2 X0 X1 X2 X2 (k1_functor2 X0 X1 X2) X5) = k5_altcat_1 X1 \\
& (k3_functor0 X0 X1 X2 X4) (k3_functor0 X0 X1 X2 X4) (k3_functor0 X0 \\
& X1 X2 X5) (k2_functor2 X0 X1 X2 X2 (k1_functor2 X0 X1 X2) X4) (k6_functor0 \\
& X0 X1 X2 X4 X5 X6))))))))))
\end{aligned}$$