

t43_functor3

(TMakVypjb7doWwA25qfKowCKVMbethAELdq)

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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 $r8_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_functor3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_functor3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k3_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_functor3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_functor3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_altcat_1 : \iota \Rightarrow o$ be given. Let $l1_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\ & X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (k1_altcat_3 X0 X1 X1 (k8_altcat_1 X0 X1) = \\ & k8_altcat_1 X0 X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\
& X2 X0 X1) \Rightarrow (\forall X3.(m2_functor0 X3 X0 X1) \Rightarrow ((r1_functor2 X0 X1 \\
& X2 X3) \Rightarrow (\forall X4.(m1_functor2 X4 X0 X1 X2 X3) \Rightarrow (\forall X5.(m1_functor2 \\
& X5 X0 X1 X2 X3) \Rightarrow ((\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow \\
& (k2_functor2 X0 X1 X2 X3 X4 X6 = k2_functor2 X0 X1 X2 X3 X5 X6)) \Rightarrow (r8_pboole \\
& (u1_struct_0 X0) X4 X5)))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg \\
& v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v15_functor0 X2 X1 X0) \wedge \\
& (m2_functor0 X2 X1 X0)) \Rightarrow (\forall X3.((v15_functor0 X3 X1 X0) \wedge (\\
& m2_functor0 X3 X1 X0)) \Rightarrow (\forall X4.(m1_functor3 X4 X1 X0 X2 X3) \Rightarrow \\
& (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow ((r1_functor3 \\
& X1 X0 X2 X3) \Rightarrow (k2_functor2 X1 X0 X3 X2 (k8_functor3 X1 X0 X2 X3 X4) X5 = \\
& k1_altcat_3 X0 (k3_functor0 X1 X0 X2 X5) (k3_functor0 X1 X0 X3 X5) \\
& (k2_functor2 X1 X0 X2 X3 X4 X5)))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge \\
& (l2_altcat_1 X0)))) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge \\
& ((v11_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge \\
& (((v15_functor0 X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \wedge ((v15_functor0 \\
& X3 X0 X1) \wedge (m2_functor0 X3 X0 X1)))) \Rightarrow (r1_functor3 X0 X1 X2 X2)
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge \\
& (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (\\
& l2_altcat_1 X1)))) \wedge ((m2_functor0 X2 X0 X1) \wedge (m2_functor0 X3 X0 \\
& X1)))) \Rightarrow (r1_functor2 X0 X1 X2 X2)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v2_altcat_1 \\ & X0)\wedge((v11_altcat_1 X0)\wedge((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))\wedge \\ & (((\neg v2_struct_0 X1)\wedge((v2_altcat_1 X1)\wedge((v11_altcat_1 X1)\wedge \\ & (v12_altcat_1 X1)\wedge(l2_altcat_1 X1))))\wedge((v15_functor0 X2 X0 \\ & X1)\wedge(m2_functor0 X2 X0 X1)))\Rightarrow(k9_functor3 X0 X1 X2 = k1_functor2 \\ & X0 X1 X2) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((v2_altcat_1 X0)\wedge((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))\wedge \\ & (((\neg v2_struct_0 X1)\wedge((v2_altcat_1 X1)\wedge((v12_altcat_1 X1)\wedge \\ & l2_altcat_1 X1))))\wedge(((v15_functor0 X2 X0 X1)\wedge(m2_functor0 X2 \\ & X0 X1)\wedge((v15_functor0 X3 X0 X1)\wedge(m2_functor0 X3 X0 X1))))\Rightarrow(\forall X4. \\ & (m2_functor2 X4 X0 X1 X2 X3)\Rightarrow(m1_functor2 X4 X0 X1 X2 X3)) \end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v2_altcat_1 X0)\wedge \\ & ((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))\wedge((\neg v2_struct_0 X1)\wedge \\ & ((v12_altcat_1 X1)\wedge(l2_altcat_1 X1))))\Rightarrow(\forall X2.(m2_functor0 \\ & X2 X0 X1)\Rightarrow(l2_functor0 X2 X0 X1)) \end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((v2_altcat_1 X0)\wedge((v11_altcat_1 X0)\wedge((v12_altcat_1 X0)\wedge \\ & (l2_altcat_1 X0))))\wedge(((\neg v2_struct_0 X1)\wedge((v2_altcat_1 X1)\wedge \\ & ((v11_altcat_1 X1)\wedge((v12_altcat_1 X1)\wedge(l2_altcat_1 X1))))\wedge \\ & (((v15_functor0 X2 X0 X1)\wedge(m2_functor0 X2 X0 X1)\wedge((v15_functor0 \\ & X3 X0 X1)\wedge(m2_functor0 X3 X0 X1))))\Rightarrow(\forall X4.(m1_functor3 \\ & X4 X0 X1 X2 X3)\Rightarrow(m2_functor2 X4 X0 X1 X2 X3)) \end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1_altcat_1 X0)\wedge(l1_altcat_1 X1))\Rightarrow(\\ & \forall X2.(l2_functor0 X2 X0 X1)\Rightarrow(l1_functor0 X2 X0 X1)) \end{aligned} \tag{11}$$

Assume the following.

$$\forall X0.(l2_altcat_1 X0)\Rightarrow(l1_altcat_1 X0) \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 \\
& X0) \wedge ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \wedge \\
& (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge \\
& (v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))))) \wedge ((v15_functor0 X2 X0 \\
& X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (m1_functor3 (k9_functor3 X0 X1 \\
& X2) X0 X1 X2 X2)
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge \\
& (l2_altcat_1 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge \\
& ((v11_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))))) \wedge \\
& (((v15_functor0 X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \wedge (((v15_functor0 \\
& X3 X0 X1) \wedge (m2_functor0 X3 X0 X1)) \wedge (m1_functor3 X4 X0 X1 X2 X3)))) \Rightarrow \\
& (m1_functor3 (k8_functor3 X0 X1 X2 X3 X4) X0 X1 X3 X2)
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge (l1_altcat_1 X0)) \wedge (((\neg v2_struct_0 X1) \wedge (l1_altcat_1 X1)) \wedge \\
& ((l1_functor0 X2 X0 X1) \wedge (m1_subset_1 X3 (u1_struct_0 X0)))) \Rightarrow \\
& (m1_subset_1 (k3_functor0 X0 X1 X2 X3) (u1_struct_0 X1))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \wedge (((\neg v2_struct_0 \\
& X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))))) \wedge \\
& (m2_functor0 X2 X0 X1)) \Rightarrow (m1_functor2 (k1_functor2 X0 X1 X2) X0 \\
& X1 X2 X2)
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1. ((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v11_altcat_1 X1) \wedge ((v12_altcat_1 \\
& X1) \wedge (l2_altcat_1 X1)))))) \Rightarrow (\forall X2. ((v15_functor0 X2 X0 X1) \wedge \\
& (m2_functor0 X2 X0 X1)) \Rightarrow (r8_pboole (u1_struct_0 X0) (k8_functor3 \\
& X0 X1 X2 X2 (k9_functor3 X0 X1 X2)) (k9_functor3 X0 X1 X2))))
\end{aligned}$$