

t18_functor3 (TMGvsQyQYvUXCCzatCRCm- dRtLGebPUM2sUZ)

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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 $r8_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k6_functor3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_functor3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_altcat_2 : \iota \Rightarrow o$ be given. Let $v6_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v8_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k13_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_altcat_1 : \iota \Rightarrow o$ be given. Let $l1_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\ & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\ & X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\ & X2 X0 X1) \Rightarrow (\forall X3.(m2_functor0 X3 X0 X1) \Rightarrow ((r1_functor2 X0 X1 \\ & X2 X3) \Rightarrow (\forall X4.(m1_functor2 X4 X0 X1 X2 X3) \Rightarrow (\forall X5.(m1_functor2 \\ & X5 X0 X1 X2 X3) \Rightarrow ((\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow \\ & (k2_functor2 X0 X1 X2 X3 X4 X6 = k2_functor2 X0 X1 X2 X3 X5 X6)) \Rightarrow (r8_pboole \\ & (u1_struct_0 X0) X4 X5)))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge ((v1_altcat_2 X1) \wedge (l2_altcat_1 X1))) \Rightarrow (\forall X2. \\
& ((\neg v2_struct_0 X2) \wedge ((v1_altcat_2 X2) \wedge (l2_altcat_1 X2))) \Rightarrow (\forall X3. \\
& ((v6_functor0 X3 X0 X1) \wedge ((v8_functor0 X3 X0 X1) \wedge (l2_functor0 X3 \\
& X0 X1))) \Rightarrow (\forall X4.(l2_functor0 X4 X1 X2) \Rightarrow (\forall X5.(m1_subset_1 \\
& X5 (u1_struct_0 X0)) \Rightarrow (k3_functor0 X0 X2 (k13_functor0 X0 X1 X2 X3 \\
& X4) X5 = k3_functor0 X1 X2 X4 (k3_functor0 X0 X1 X3 X5))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((\neg \\
& v2_struct_0 X2) \wedge ((v2_altcat_1 X2) \wedge ((v12_altcat_1 X2) \wedge (l2_altcat_1 \\
& X2)))) \Rightarrow (\forall X3.((v15_functor0 X3 X2 X0) \wedge (m2_functor0 X3 X2 \\
& X0)) \Rightarrow (\forall X4.((v15_functor0 X4 X0 X1) \wedge (m2_functor0 X4 X0 X1)) \Rightarrow (\\
& (\forall X5.((v15_functor0 X5 X0 X1) \wedge (m2_functor0 X5 X0 X1)) \Rightarrow (\\
& \forall X6.(m1_functor2 X6 X0 X1 X4 X5) \Rightarrow (\forall X7.(m1_subset_1 \\
& X7 (u1_struct_0 X2)) \Rightarrow ((r1_functor2 X0 X1 X4 X5) \Rightarrow (k2_functor2 X2 \\
& X1 (k1_functor3 X2 X0 X1 X3 X4) (k1_functor3 X2 X0 X1 X3 X5) (k6_functor3 \\
& X2 X0 X1 X4 X5 X3 X6) X7 = k2_functor2 X0 X1 X4 X5 X6 (k3_functor0 X2 X0 \\
& X3 X7))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge \\
& (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (\\
& l2_altcat_1 X1)))) \wedge ((m2_functor0 X2 X0 X1) \wedge (m2_functor0 X3 X0 \\
& X1)))) \Rightarrow (r1_functor2 X0 X1 X2 X2)
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge (((\neg v2_struct_0 \\
& X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge \\
& ((v15_functor0 X2 X0 X1) \wedge (m2_functor0 X2 X0 X1))) \Rightarrow (k4_functor2 \\
& X0 X1 X2 = k1_functor2 X0 X1 X2)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge \\
& (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge ((\neg v2_struct_0 X2) \wedge ((v12_altcat_1 X2) \wedge (l2_altcat_1 X2)))) \wedge (((v15_functor0 X3 X0 X1) \wedge (m2_functor0 X3 X0 X1)) \wedge ((v15_functor0 X4 X1 X2) \wedge (m2_functor0 X4 X1 X2)))) \Rightarrow (\\
& k1_functor3 X0 X1 X2 X3 X4 = k13_functor0 X0 X1 X2 X3 X4)
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2. (m2_functor0 X2 X0 X1) \Rightarrow (l2_functor0 X2 X0 X1))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((l1_altcat_1 X0) \wedge (l1_altcat_1 X1)) \Rightarrow (\\
& \forall X2. (l2_functor0 X2 X0 X1) \Rightarrow (l1_functor0 X2 X0 X1))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0. (l2_altcat_1 X0) \Rightarrow (l1_altcat_1 X0) \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& \forall X6. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge (((\neg v2_struct_0 X2) \wedge ((v2_altcat_1 X2) \wedge ((v12_altcat_1 X2) \wedge (l2_altcat_1 X2)))) \wedge (((v15_functor0 X3 X1 X2) \wedge (m2_functor0 X3 X1 X2)) \wedge (((v15_functor0 X4 X1 X2) \wedge (m2_functor0 X4 X1 X2)) \wedge (((v15_functor0 X5 X0 X1) \wedge (m2_functor0 X5 X0 X1)) \wedge (m1_functor2 X6 X1 X2 X3 X4)))))) \Rightarrow (m1_functor2 (k6_functor3 X0 X1 X2 X3 X4 X5 X6) X0 X2 (k1_functor3 X0 X1 X2 X5 X3) (k1_functor3 X0 X1 X2 X5 X4))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge (l1_altcat_1 X0)) \wedge (((\neg v2_struct_0 X1) \wedge (l1_altcat_1 X1)) \wedge ((l1_functor0 X2 X0 X1) \wedge (m1_subset_1 X3 (u1_struct_0 X0)))) \Rightarrow \\
& (m1_subset_1 (k3_functor0 X0 X1 X2 X3) (u1_struct_0 X1))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\
& X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge \\
& (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge \\
& (((\neg v2_struct_0 X2) \wedge ((v12_altcat_1 X2) \wedge (l2_altcat_1 X2)))) \wedge ((v15_functor0 X3 X0 X1) \wedge (m2_functor0 X3 \\
& X0 X1)) \wedge ((v15_functor0 X4 X1 X2) \wedge (m2_functor0 X4 X1 X2)))) \Rightarrow (\\
& (v9_functor0 (k1_functor3 X0 X1 X2 X3 X4) X0 X2) \wedge ((v15_functor0 \\
& (k1_functor3 X0 X1 X2 X3 X4) X0 X2) \wedge (m2_functor0 (k1_functor3 X0 \\
& X1 X2 X3 X4) X0 X2)))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge (((\neg v2_struct_0 \\
& X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge \\
& (m2_functor0 X2 X0 X1))) \Rightarrow (m1_functor2 (k1_functor2 X0 X1 X2) X0 \\
& X1 X2 X2)
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2. (m2_functor0 \\
& X2 X0 X1) \Rightarrow ((v15_functor0 X2 X0 X1) \Rightarrow (v6_functor0 X2 X0 X1)))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (l2_altcat_1 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v12_altcat_1 \\
& X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge (v1_altcat_2 X0)))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2. (m2_functor0 \\
& X2 X0 X1) \Rightarrow ((v8_functor0 X2 X0 X1) \wedge (v12_functor0 X2 X0 X1)))
\end{aligned} \tag{17}$$

Theorem 1

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2. ((\neg \\
& v2_struct_0 X2) \wedge ((v2_altcat_1 X2) \wedge ((v12_altcat_1 X2) \wedge (l2_altcat_1 \\
& X2)))) \Rightarrow (\forall X3. ((v15_functor0 X3 X0 X1) \wedge (m2_functor0 X3 X0 \\
& X1)) \Rightarrow (\forall X4. ((v15_functor0 X4 X1 X2) \wedge (m2_functor0 X4 X1 X2)) \Rightarrow \\
& (r8_pboole (u1_struct_0 X0) (k6_functor3 X0 X1 X2 X4 X4 X3 (k4_functor2 \\
& X1 X2 X4)) (k4_functor2 X0 X2 (k1_functor3 X0 X1 X2 X3 X4))))))
\end{aligned}$$