

t32_altcat_4

(TMQE8cpphCc3FGsJ7nvdkhVLRbyUacEcXDQ)

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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 $v16_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v18_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v17_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_functor0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_altcat_1 : \iota \Rightarrow o$ be given. Let $l1_functor0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v11_functor0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v14_functor0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\ & X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & X0)) \Rightarrow (\neg(k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge ((k1_altcat_1 X0 X2 \\ & X1 \neq k1_xboole_0) \wedge (\neg \forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\ & X1 X2)) \Rightarrow ((v3_altcat_3 X3 X0 X1 X2) \Leftrightarrow ((v1_altcat_3 X3 X0 X1 X2) \wedge (v2_altcat_3 \\ & X3 X0 X1 X2)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\ & X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2)) \Rightarrow ((v3_altcat_3 \\ & X3 X0 X1 X2) \Rightarrow ((v1_altcat_3 X3 X0 X1 X2) \wedge (v2_altcat_3 X3 X0 X1 X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v16_functor0 \\
& X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (\\
& u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X5.(m1_subset_1 X5 (k1_altcat_1 X0 X3 X4)) \Rightarrow (((v18_functor0 \\
& X2 X0 X1) \wedge ((v17_functor0 X2 X0 X1) \wedge (v2_altcat_3 (k8_functor0 X0 \\
& X1 X2 X3 X4 X5) X1 (k3_functor0 X0 X1 X2 X4) (k3_functor0 X0 X1 X2 X3)))) \Rightarrow \\
& ((k1_altcat_1 X0 X3 X4 = k1_xboole_0) \vee ((k1_altcat_1 X0 X4 X3 = k1_xboole_0) \vee \\
& (v1_altcat_3 X5 X0 X3 X4)))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\
& X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.((v16_functor0 \\
& X2 X0 X1) \wedge (m2_functor0 X2 X0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (\\
& u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X5.(m1_subset_1 X5 (k1_altcat_1 X0 X3 X4)) \Rightarrow (((v18_functor0 \\
& X2 X0 X1) \wedge ((v17_functor0 X2 X0 X1) \wedge (v1_altcat_3 (k8_functor0 X0 \\
& X1 X2 X3 X4 X5) X1 (k3_functor0 X0 X1 X2 X4) (k3_functor0 X0 X1 X2 X3)))) \Rightarrow \\
& ((k1_altcat_1 X0 X3 X4 = k1_xboole_0) \vee ((k1_altcat_1 X0 X4 X3 = k1_xboole_0) \vee \\
& (v2_altcat_3 X5 X0 X3 X4)))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge \\
& ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2.(m2_functor0 \\
& X2 X0 X1) \Rightarrow (l2_functor0 X2 X0 X1))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((l1_altcat_1 X0) \wedge (l1_altcat_1 X1)) \Rightarrow (\\
& \forall X2.(l2_functor0 X2 X0 X1) \Rightarrow (l1_functor0 X2 X0 X1))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(l2_altcat_1 X0) \Rightarrow (l1_altcat_1 X0) \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& (((\neg v2_struct_0 X0)\wedge(l1_altcat_1 X0))\wedge((\neg v2_struct_0 X1)\wedge \\
& (l1_altcat_1 X1))\wedge((v11_functor0 X2 X0 X1)\wedge(l2_functor0 X2 X0 \\
& X1))\wedge((m1_subset_1 X3 (u1_struct_0 X0))\wedge((m1_subset_1 X4 (u1_struct_0 \\
& X0))\wedge(m1_subset_1 X5 (k1_altcat_1 X0 X3 X4))))))\Rightarrow(m1_subset_1 \\
& (k8_functor0 X0 X1 X2 X3 X4 X5) (k1_altcat_1 X1 (k3_functor0 X0 X1 \\
& X2 X4) (k3_functor0 X0 X1 X2 X3)))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((\neg v2_struct_0 \\
& X0)\wedge(l1_altcat_1 X0))\wedge((\neg v2_struct_0 X1)\wedge(l1_altcat_1 X1))\wedge \\
& ((l1_functor0 X2 X0 X1)\wedge(m1_subset_1 X3 (u1_struct_0 X0)))\Rightarrow \\
& (m1_subset_1 (k3_functor0 X0 X1 X2 X3) (u1_struct_0 X1))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v2_altcat_1 X0)\wedge \\
& ((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))\wedge((\neg v2_struct_0 X1)\wedge \\
& ((v12_altcat_1 X1)\wedge(l2_altcat_1 X1))))\Rightarrow(\forall X2.(m2_functor0 \\
& X2 X0 X1)\Rightarrow((v16_functor0 X2 X0 X1)\Rightarrow((v11_functor0 X2 X0 X1)\wedge(v14_functor0 \\
& X2 X0 X1))))
\end{aligned} \tag{10}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((v2_altcat_1 X0)\wedge((v11_altcat_1 \\
& X0)\wedge((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))))\Rightarrow(\forall X1.((\\
& \neg v2_struct_0 X1)\wedge((v2_altcat_1 X1)\wedge((v11_altcat_1 X1)\wedge((v12_altcat_1 \\
& X1)\wedge(l2_altcat_1 X1))))))\Rightarrow(\forall X2.((v16_functor0 X2 X0 X1)\wedge \\
& (m2_functor0 X2 X0 X1))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (u1_struct_0 X0))\Rightarrow(\forall X5. \\
& (m1_subset_1 X5 (k1_altcat_1 X0 X3 X4))\Rightarrow(((v18_functor0 X2 X0 X1)\wedge \\
& ((v17_functor0 X2 X0 X1)\wedge(v3_altcat_3 (k8_functor0 X0 X1 X2 X3 X4 \\
& X5) X1 (k3_functor0 X0 X1 X2 X4) (k3_functor0 X0 X1 X2 X3))))))\Rightarrow((k1_altcat_1 \\
& X0 X3 X4 = k1_xboole_0)\vee((k1_altcat_1 X0 X4 X3 = k1_xboole_0)\vee(v3_altcat_3 \\
& X5 X0 X3 X4))))))
\end{aligned}$$