

t5_altcat_4

(TMQPsjm3LcuBkKbh41kJyG1gegBJF7nyEoL)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
 & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
 & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
 & (u1_struct_0 X0)) \Rightarrow (\neg(k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge ((k1_altcat_1 \\
 & X0 X2 X3 \neq k1_xboole_0) \wedge ((k1_altcat_1 X0 X3 X4 \neq k1_xboole_0) \wedge (\neg \\
 & \forall X5.(m1_subset_1 X5 (k1_altcat_1 X0 X1 X2)) \Rightarrow (\forall X6. \\
 & (m1_subset_1 X6 (k1_altcat_1 X0 X2 X3)) \Rightarrow (\forall X7.(m1_subset_1 \\
 & X7 (k1_altcat_1 X0 X3 X4)) \Rightarrow (k5_altcat_1 X0 X1 X3 X4 (k5_altcat_1 \\
 & X0 X1 X2 X3 X5 X6) X7 = k5_altcat_1 X0 X1 X2 X4 X5 (k5_altcat_1 X0 X2 X3 \\
 & X4 X6 X7)))))))))))))
 \end{aligned}
 \tag{1}$$

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.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& (((\neg v2_struct_0 X0)\wedge(l2_altcat_1 X0))\wedge((m1_subset_1 X1 (u1_struct_0 \\
& X0))\wedge((m1_subset_1 X2 (u1_struct_0 X0))\wedge((m1_subset_1 X3 (u1_struct_0 \\
& X0))\wedge((m1_subset_1 X4 (k1_altcat_1 X0 X1 X2))\wedge(m1_subset_1 X5 \\
& (k1_altcat_1 X0 X2 X3))))))\Rightarrow(m1_subset_1 (k5_altcat_1 X0 X1 X2 \\
& X3 X4 X5) (k1_altcat_1 X0 X1 X3))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((v12_altcat_1 X0)\wedge(l2_altcat_1 \\
& X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2. \\
& (m1_subset_1 X2 (k1_altcat_1 X0 X1 X1))\Rightarrow((X2 = k8_altcat_1 X0 X1)\Leftrightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow((k1_altcat_1 \\
& X0 X1 X3\neq k1_xboole_0)\Rightarrow(\forall X4.(m1_subset_1 X4 (k1_altcat_1 \\
& X0 X1 X3))\Rightarrow(k5_altcat_1 X0 X1 X1 X3 X2 X4 = X4))))))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((v2_altcat_1 X0)\wedge((v11_altcat_1 \\
& X0)\wedge((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))\Rightarrow(\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2))\Rightarrow(\forall X4. \\
& (m1_subset_1 X4 (k1_altcat_1 X0 X2 X1))\Rightarrow(\forall X5.(m1_subset_1 \\
& X5 (k1_altcat_1 X0 X2 X1))\Rightarrow(((k5_altcat_1 X0 X1 X2 X1 X3 X5 = k8_altcat_1 \\
& X0 X1)\wedge(k5_altcat_1 X0 X2 X1 X2 X4 X3 = k8_altcat_1 X0 X2))\Rightarrow((k1_altcat_1 \\
& X0 X1 X2 = k1_xboole_0)\vee((k1_altcat_1 X0 X2 X1 = k1_xboole_0)\vee(X4 = \\
& X5))))))))))
\end{aligned}$$