

t2_altcat_4
(TMGto5AQviceEmcPdafPnWbPG7aV7LUy13n)

October 27, 2020

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 $k1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& (((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 \\
& X0)) \wedge ((m1_subset_1 X2 (u1_struct_0 X0)) \wedge ((m1_subset_1 X3 (u1_struct_0 \\
& X0)) \wedge ((m1_subset_1 X4 (k1_altcat_1 X0 X1 X2)) \wedge (m1_subset_1 X5 \\
& (k1_altcat_1 X0 X2 X3)))))) \Rightarrow (m1_subset_1 (k5_altcat_1 X0 X1 X2 \\
& X3 X4 X5) (k1_altcat_1 X0 X1 X3))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge((v2_altcat_1 X0)\wedge((v11_altcat_1 X0)\wedge((v12_altcat_1 X0)\wedge \\
& (l2_altcat_1 X0))))))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge((m1_subset_1 \\
& X2 (u1_struct_0 X0))\wedge(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2))))))\Rightarrow \\
& (m1_subset_1 (k1_altcat_3 X0 X1 X2 X3) (k1_altcat_1 X0 X2 X1))
\end{aligned} \tag{3}$$

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

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((v2_altcat_1 X0)\wedge((v11_altcat_1 \\
& X0)\wedge((v12_altcat_1 X0)\wedge(l2_altcat_1 X0))))))\Rightarrow(\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4. \\
& (m1_subset_1 X4 (k1_altcat_1 X0 X1 X2))\Rightarrow(\forall X5.(m1_subset_1 \\
& X5 (k1_altcat_1 X0 X3 X2))\Rightarrow(\forall X6.(m1_subset_1 X6 (k1_altcat_1 \\
& X0 X3 X1))\Rightarrow(((X5 = k5_altcat_1 X0 X3 X1 X2 X6 X4)\wedge(k5_altcat_1 X0 X1 \\
& X3 X1 (k1_altcat_3 X0 X3 X1 X6) X6 = k8_altcat_1 X0 X1))\Rightarrow((k1_altcat_1 \\
& X0 X3 X1 = k1_xboole_0)\vee((k1_altcat_1 X0 X1 X3 = k1_xboole_0)\vee((\\
& k1_altcat_1 X0 X1 X2 = k1_xboole_0)\vee(X4 = k5_altcat_1 X0 X1 X3 X2 (\\
& k1_altcat_3 X0 X3 X1 X6) X5))))))))))
\end{aligned}$$