

t1_altpat_4

(TMdu6ZTVa1Ex3GVYSwQTPAMq9JgkPYWxjQA)

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

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
 & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
 & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \Rightarrow \\
 & (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2)) \Rightarrow (k5_altcat_1 \\
 & X0 X1 X2 X2 X3 (k8_altcat_1 X0 X2) = X3))))))
 \end{aligned} \tag{2}$$

Assume the following.

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

Theorem 1

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