

t6_altcat_3

(TMY353NJqGxocNP6s28PQca3QLrUPLFoVXA)

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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 $k1_xboole_0 : \iota$ be given. Let $v3_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\ & X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & X0)) \Rightarrow (\neg (k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge ((k1_altcat_1 X0 X2 \\ & X1 \neq k1_xboole_0) \wedge (\exists X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\ & X1 X2)) \wedge ((v1_altcat_3 X3 X0 X1 X2) \wedge ((v2_altcat_3 X3 X0 X1 X2) \wedge (\neg \\ & (k5_altcat_1 X0 X1 X2 X1 X3 (k1_altcat_3 X0 X1 X2 X3) = k8_altcat_1 \\ & X0 X1) \wedge (k5_altcat_1 X0 X2 X1 X2 (k1_altcat_3 X0 X1 X2 X3) X3 = k8_altcat_1 \\ & X0 X2)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2)) \Rightarrow ((v3_altcat_3 \\
& X3 X0 X1 X2) \Leftrightarrow ((k5_altcat_1 X0 X2 X1 X2 (k1_altcat_3 X0 X1 X2 X3) X3 = \\
& k8_altcat_1 X0 X2) \wedge (k5_altcat_1 X0 X1 X2 X1 X3 (k1_altcat_3 X0 X1 \\
& X2 X3) = k8_altcat_1 X0 X1))))))
\end{aligned} \tag{3}$$

Theorem 1

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