

t15_altcat_3
(TMPiAtJij99qXgwbpTJtDddwFAR6oSJFJge)

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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 $v1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\ & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\neg(k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge \\ & ((k1_altcat_1 X0 X2 X3 \neq k1_xboole_0) \wedge (\exists X4.(m1_subset_1 \\ & X4 (k1_altcat_1 X0 X1 X2)) \wedge (\exists X5.(m1_subset_1 X5 (k1_altcat_1 \\ & X0 X2 X3)) \wedge ((v5_altcat_3 (k5_altcat_1 X0 X1 X2 X3 X4 X5) X0 X1 X3) \wedge \\ & (\neg v5_altcat_3 X5 X0 X2 X3)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v5_altcat_3 \\ & (k8_altcat_1 X0 X1) X0 X1 X1) \wedge (v4_altcat_3 (k8_altcat_1 X0 X1) X0 \\ & X1 X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (k1_altcat_1 X0 X1 X2)) \Rightarrow ((v1_altcat_3 X3 X0 X1 X2) \Leftrightarrow (\exists X4. \\ & (m1_subset_1 X4 (k1_altcat_1 X0 X2 X1)) \wedge (r1_altcat_3 X0 X1 X2 X3 \\ & X4)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& \quad X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& \quad (k1_altcat_1 X0 X1 X2)) \Rightarrow (\forall X4.(m1_subset_1 X4 (k1_altcat_1 \\
& \quad X0 X2 X1)) \Rightarrow ((r1_altcat_3 X0 X1 X2 X3 X4) \Leftrightarrow (k5_altcat_1 X0 X2 X1 X2 X4 \\
& \quad X3 = k8_altcat_1 X0 X2))))))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& \quad X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& \quad X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& \quad X0)) \Rightarrow (\neg(k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \wedge ((k1_altcat_1 X0 X2 \\
& \quad X1 \neq k1_xboole_0) \wedge (\exists X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\
& \quad X1 X2)) \wedge ((v1_altcat_3 X3 X0 X1 X2) \wedge (\neg v5_altcat_3 X3 X0 X1 X2))))))
\end{aligned}$$