

t8_altcat_4
(TMQUwRu4HV1uyTkz3JaM8vxKKKmbcFPZHeu)

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Let $v2_struct_0 : \iota \Rightarrow o$ 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 $v7_altcat_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_altcat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $l1_altcat_1 : \iota \Rightarrow o$ be given. Let $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_altcat_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow ((v7_altcat_3 X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \Rightarrow (\exists X3.(m1_subset_1 X3 (k1_altcat_1 X0 X2 X1)) \wedge ((X3 \in \\ k1_altcat_1 X0 X2 X1) \wedge (\forall X4.(m1_subset_1 X4 (k1_altcat_1 \\ X0 X2 X1)) \Rightarrow ((X4 \in k1_altcat_1 X0 X2 X1) \Rightarrow (X3 = X4)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(l2_altcat_1 X0) \Rightarrow (l1_altcat_1 X0) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\ X1 X2)) \Rightarrow ((v4_altcat_3 X3 X0 X1 X2) \Leftrightarrow (\forall X4.(m1_subset_1 X4 \\ (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X4 X1 \neq k1_xboole_0) \Rightarrow (\forall X5. \\ (m1_subset_1 X5 (k1_altcat_1 X0 X4 X1)) \Rightarrow (\forall X6.(m1_subset_1 \\ X6 (k1_altcat_1 X0 X4 X1)) \Rightarrow ((k5_altcat_1 X0 X4 X1 X2 X5 X3 = k5_altcat_1 \\ X0 X4 X1 X2 X6 X3) \Rightarrow (X5 = X6)))))))))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 \\ & X1 X2)) \Rightarrow ((v7_altcat_3 X1 X0) \Rightarrow (v4_altcat_3 X3 X0 X1 X2)))))) \end{aligned}$$