t9_altcat_4 (TMWHURq-soGk81LUgzxLE8W1RUG146aHTxbX)

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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 $v6\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k5\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0) \Rightarrow (X0 = k1\_xboole\_0) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{2}$$

Assume the following.

$$\begin{gathered}\forall X0.(l1\_altcat\_1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow ((v6\_altcat\_3\ X1\ X0) \Leftrightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\exists X3.(m1\_subset\_1\ X3\ (k1\_altcat\_1\ X0\ X1\ X2)) \wedge ((X3 \in k1\_altcat\_1\ X0\ X1\ X2) \wedge (\forall X4.(m1\_subset\_1\ X4\ (k1\_altcat\_1\ X0\ X1\ X2)) \Rightarrow ((X4 \in k1\_altcat\_1\ X0\ X1\ X2) \Rightarrow (X3 = X4)))))))\end{gathered} \tag{3}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0) \Rightarrow (l1\_altcat\_1\ X0) \tag{4}$$

Assume the following.

$$\begin{gathered}\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l2\_altcat\_1\ X0)) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_altcat\_1\ X0\ X1\ X2)) \Rightarrow ((v5\_altcat\_3\ X3\ X0\ X1\ X2) \Leftrightarrow (\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0)) \Rightarrow ((k1\_altcat\_1\ X0\ X2\ X4 \neq k1\_xboole\_0) \Rightarrow (\forall X5.(m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X2\ X4)) \Rightarrow (\forall X6.(m1\_subset\_1\ X6\ (k1\_altcat\_1\ X0\ X2\ X4)) \Rightarrow ((k5\_altcat\_1\ X0\ X1\ X2\ X4\ X3\ X5 = k5\_altcat\_1\ X0\ X1\ X2\ X4\ X3\ X6) \Rightarrow (X5 = X6)))))))))\end{gathered} \tag{5}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l2\_altcat\_1\ X0))\Rightarrow(\forall X1.\ (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_altcat\_1\ X0\ X2\ X1))\Rightarrow((v6\_altcat\_3\ X1\ X0)\Rightarrow(v5\_altcat\_3\ X3\ X0\ X2\ X1)))))$$