t8_altcat_3 (TMJG1RWaF6TAHUE6tgxxW2FQEynDxXRgFNL)

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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 $r2\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_xboole\_0 : \iota$ 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 $l1\_altcat\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_altcat\_1\ X0) \wedge ((v11\_altcat\_1\ X0) \wedge ((v12\_altcat\_1\ X0) \wedge (l2\_altcat\_1\ X0))))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k1\_altcat\_1\ X0\ X1\ X2)) \Rightarrow (\forall X5.(m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X2\ X3)) \Rightarrow (((v3\_altcat\_3\ X4\ X0\ X1\ X2) \wedge (v3\_altcat\_3\ X5\ X0\ X2\ X3)) \Rightarrow ((k1\_altcat\_1\ X0\ X1\ X2 = k1\_xboole\_0) \vee ((k1\_altcat\_1\ X0\ X2\ X3 = k1\_xboole\_0) \vee ((k1\_altcat\_1\ X0\ X3\ X1 = k1\_xboole\_0) \vee ((v3\_altcat\_3\ (k5\_altcat\_1\ X0\ X1\ X2\ X3\ X4\ X5)\ X0\ X1\ X3) \wedge (k1\_altcat\_3\ X0\ X1\ X3\ (k5\_altcat\_1\ X0\ X1\ X2\ X3\ X4\ X5) = k5\_altcat\_1\ X0\ X3\ X2\ X1\ (k1\_altcat\_3\ X0\ X2\ X3\ X5)\ (k1\_altcat\_3\ X0\ X1\ X2\ X4)))))))))))) \tag{1}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0) \Rightarrow (l1\_altcat\_1\ X0) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.(((\neg v2\_struct\_0\ X0) \wedge (l2\_altcat\_1\ X0)) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge ((m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \wedge ((m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \wedge ((m1\_subset\_1\ X4\ (k1\_altcat\_1\ X0\ X1\ X2)) \wedge (m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X2\ X3))))))) \Rightarrow (m1\_subset\_1\ (k5\_altcat\_1\ X0\ X1\ X2\ X3\ X4\ X5)\ (k1\_altcat\_1\ X0\ X1\ X3)) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0)))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r2\_altcat\_3\ X0\ X1\ X2)\Leftrightarrow((k1\_altcat\_1\ X0\ X1\ X2\neq k1\_xboole\_0)\wedge((k1\_altcat\_1\ X0\ X2\ X1\neq k1\_xboole\_0)\wedge(\exists X3.(m1\_subset\_1\ X3\ (k1\_altcat\_1\ X0\ X1\ X2))\wedge(v3\_altcat\_3\ X3\ X0\ X1\ X2)))))))) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_altcat\_1\ X0)\Rightarrow((v2\_altcat\_1\ X0)\Leftrightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\neg(k1\_altcat\_1\ X0\ X1\ X2\neq k1\_xboole\_0)\wedge((k1\_altcat\_1\ X0\ X2\ X3\neq k1\_xboole\_0)\wedge(k1\_altcat\_1\ X0\ X1\ X3 = k1\_xboole\_0))))))) \tag{5}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0)))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(((r2\_altcat\_3\ X0\ X1\ X2)\wedge(r2\_altcat\_3\ X0\ X2\ X3))\Rightarrow(r2\_altcat\_3\ X0\ X1\ X3)))))$$