t15_altcat_1 (TMRFLUKUXBX-cAMe8pF6diP41d2i5V8unbtU)

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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 $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k4\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_altcat\_1 : \iota \Rightarrow \iota$ be given. Let $u2\_altcat\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{1}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0) \Rightarrow (m2\_pboole\ (u2\_altcat\_1\ X0)\ (k3\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (k3\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u1\_altcat\_1\ X0))\ (k2\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0))) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_altcat\_1\ X0) \Rightarrow ((v1\_relat\_1\ (u1\_altcat\_1\ X0)) \wedge ((v4\_relat\_1\ (u1\_altcat\_1\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))) \wedge ((v1\_funct\_1\ (u1\_altcat\_1\ X0)) \wedge (v1\_partfun1\ (u1\_altcat\_1\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))))) \tag{3}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1\_altcat\_1\ X0) \Rightarrow (l1\_struct\_0\ X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.\ ((\neg v1\_xboole\_0\ X0)\wedge(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (k2\_zfmisc\_1\ X0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (k2\_zfmisc\_1\ X0\ X0)))))\wedge((m2\_pboole\ X2\ (k3\_zfmisc\_1\ X0\ X0\ X0)\ (k3\_altcat\_1\ X0\ X1\ X1)\ (k2\_altcat\_1\ X0\ X1))\wedge((m1\_subset\_1\ X3\ X0)\wedge((m1\_subset\_1\ X4\ X0)\wedge(m1\_subset\_1\ X5\ X0))))))\Rightarrow((v1\_funct\_1\ (k4\_altcat\_1\ X0\ X1\ X2\ X3\ X4\ X5))\wedge((v1\_funct\_2\ (k4\_altcat\_1\ X0\ X1\ X2\ X3\ X4\ X5)\ (k2\_zfmisc\_1\ (k1\_binop\_1\ X1\ X4\ X5)\ (k1\_binop\_1\ X1\ X3\ X4))\ (k1\_binop\_1\ X1\ X3\ X5))\wedge(m1\_subset\_1\ (k4\_altcat\_1\ X0\ X1\ X2\ X3\ X4\ X5)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_binop\_1\ X1\ X4\ X5)\ (k1\_binop\_1\ X1\ X3\ X4))\ (k1\_binop\_1\ X1\ X3\ X5))))))) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_altcat\_1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(k1\_altcat\_1\ X0\ X1\ X2 = k1\_binop\_1\ (u1\_altcat\_1\ X0)\ X1\ X2))) \tag{7}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l2\_altcat\_1\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow((v1\_funct\_1\ (k4\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u2\_altcat\_1\ X0)\ X1\ X2\ X3))\wedge((v1\_funct\_2\ (k4\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u2\_altcat\_1\ X0)\ X1\ X2\ X3)\ (k2\_zfmisc\_1\ (k1\_altcat\_1\ X0\ X2\ X3)\ (k1\_altcat\_1\ X0\ X1\ X2))\ (k1\_altcat\_1\ X0\ X1\ X3))\wedge(m1\_subset\_1\ (k4\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u2\_altcat\_1\ X0)\ X1\ X2\ X3)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_altcat\_1\ X0\ X2\ X3)\ (k1\_altcat\_1\ X0\ X1\ X2))\ (k1\_altcat\_1\ X0\ X1\ X3)))))))))$$