t17_altcat_2 (TMSh1akby9Z78GHnoduZgR1a6PNoHnRYrbT)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_cat\_1 : \iota \Rightarrow o$ be given. Let $v3\_cat\_1 : \iota \Rightarrow o$ be given. Let $v4\_cat\_1 : \iota \Rightarrow o$ be given. Let $v5\_cat\_1 : \iota \Rightarrow o$ be given. Let $v6\_cat\_1 : \iota \Rightarrow o$ be given. Let $l1\_cat\_1 : \iota \Rightarrow o$ be given. Let $v12\_altcat\_1 : \iota \Rightarrow o$ be given. Let $k4\_altcat\_2 : \iota \Rightarrow \iota$ be given. Let $v5\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_altcat\_2 : \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k2\_altcat\_2 : \iota \Rightarrow \iota$ be given. Let $v4\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $g2\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6\_altcat\_1 : \iota \Rightarrow o$ be given. Let $l2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $u2\_altcat\_1 : \iota \Rightarrow \iota$ be given. Let $u1\_altcat\_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_cat\_1\ X0) \wedge ((v3\_cat\_1\ X0) \wedge ((v4\_cat\_1\ X0) \wedge ((v5\_cat\_1\ X0) \wedge ((v6\_cat\_1\ X0) \wedge (l1\_cat\_1\ X0)))))))) \Rightarrow ((v5\_altcat\_1\ (k3\_altcat\_2\ X0)\ (u1\_struct\_0\ X0)\ (k2\_altcat\_2\ X0)) \wedge (v4\_altcat\_1\ (k3\_altcat\_2\ X0)\ (u1\_struct\_0\ X0)\ (k2\_altcat\_2\ X0))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ (k2\_zfmisc\_1\ X0\ X0)) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ (k2\_zfmisc\_1\ X0\ X0))))) \wedge (m2\_pboole\ X2\ (k3\_zfmisc\_1\ X0\ X0\ X0)\ (k3\_altcat\_1\ X0\ X1\ X1)\ (k2\_altcat\_1\ X0\ X1))) \Rightarrow (\forall X3.\forall X4.\forall X5.\ (g2\_altcat\_1\ X0\ X1\ X2 = g2\_altcat\_1\ X3\ X4\ X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_cat\_1\ X0) \wedge ((v3\_cat\_1\ X0) \wedge ((v4\_cat\_1\ X0) \wedge ((v5\_cat\_1\ X0) \wedge ((v6\_cat\_1\ X0) \wedge (l1\_cat\_1\ X0)))))))) \Rightarrow ((\neg v2\_struct\_0\ (k4\_altcat\_2\ X0)) \wedge ((v6\_altcat\_1\ (k4\_altcat\_2\ X0)) \wedge (l2\_altcat\_1\ (k4\_altcat\_2\ X0)))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(m2\_pboole\ (k3\_altcat\_2\ X0)\ (k3\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (k3\_altcat\_1\ (u1\_struct\_0\ X0)\ (k2\_altcat\_2\ X0)\ (k2\_altcat\_2\ X0))\ (k2\_altcat\_1\ (u1\_struct\_0\ X0)\ (k2\_altcat\_2\ X0))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_cat\_1\ X0)))\Rightarrow((v1\_relat\_1\ (k2\_altcat\_2\ X0))\wedge((v4\_relat\_1\ (k2\_altcat\_2\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))\wedge((v1\_funct\_1\ (k2\_altcat\_2\ X0))\wedge(v1\_partfun1\ (k2\_altcat\_2\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))))) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(k4\_altcat\_2\ X0 = g2\_altcat\_1\ (u1\_struct\_0\ X0)\ (k2\_altcat\_2\ X0)\ (k3\_altcat\_2\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l2\_altcat\_1\ X0))\Rightarrow((v12\_altcat\_1\ X0)\Leftrightarrow((v5\_altcat\_1\ (u2\_altcat\_1\ X0)\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0))\wedge(v4\_altcat\_1\ (u2\_altcat\_1\ X0)\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)))) \tag{7}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow((v6\_altcat\_1\ X0)\Rightarrow(X0 = g2\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u2\_altcat\_1\ X0))) \tag{8}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(v12\_altcat\_1\ (k4\_altcat\_2\ X0))$$