t47_cat_4 (TMHzhyqsJqtwzTv6e8ThadLXDii5exLvfJg)

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Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k23\_cat\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g2\_cat\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v7\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v15\_struct\_0 : \iota \Rightarrow o$ be given. Let $v5\_cat\_4 : \iota \Rightarrow o$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $l2\_cat\_4 : \iota \Rightarrow o$ be given. Let $k1\_algstr\_1 : \iota \Rightarrow \iota$ be given. Let $k18\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k17\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u1\_graph\_1 : \iota \Rightarrow \iota$ be given. Let $u2\_graph\_1 : \iota \Rightarrow \iota$ be given. Let $u1\_cat\_1 : \iota \Rightarrow \iota$ be given. Let $u5\_cat\_4 : \iota \Rightarrow \iota$ be given. Let $u6\_cat\_4 : \iota \Rightarrow \iota$ be given. Let $u7\_cat\_4 : \iota \Rightarrow \iota$ be given. Let $u8\_cat\_4 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.\forall X6.\forall X7.\forall X8.(((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ X1\ X0) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0))))) \wedge (((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ X1\ X0) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0))))) \wedge (((v1\_funct\_1\ X4) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X1)\ X1)))) \wedge ((m1\_subset\_1\ X5\ X0) \wedge (((v1\_funct\_1\ X6) \wedge ((v1\_funct\_2\ X6\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0))))) \wedge (((v1\_funct\_1\ X7) \wedge ((v1\_funct\_2\ X7\ (k2\_zfmisc\_1\ X0\ X0)\ X1) \wedge (m1\_subset\_1\ X7\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X1))))) \wedge ((v1\_funct\_1\ X8) \wedge ((v1\_funct\_2\ X8\ (k2\_zfmisc\_1\ X0\ X0)\ X1) \wedge (m1\_subset\_1\ X8\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X1)))))))))) \Rightarrow (\forall X9.\forall X10.\forall X11.\forall X12.\forall X13.\forall X14.\forall X15.\forall X16.\forall X17.(g2\_cat\_4\ X0\ X1\ X2\ X3\ X4\ X5\ X6\ X7\ X8 = g2\_cat\_4\ X9\ X10\ X11\ X12\ X13\ X14\ X15\ X16\ X17) \Rightarrow ((X0 = X9) \wedge ((X1 = X10) \wedge ((X2 = X11) \wedge ((X3 = X12) \wedge ((X4 = X13) \wedge ((X5 = X14) \wedge ((X6 = X15) \wedge ((X7 = X16) \wedge (X8 = X17)))))))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v2\_struct\_0\ (k23\_cat\_4\ X0\ X1))\wedge((v7\_struct\_0\ (k23\_cat\_4\ X0\ X1))\wedge((\neg v11\_struct\_0\ (k23\_cat\_4\ X0\ X1))\wedge((v15\_struct\_0\ (k23\_cat\_4\ X0\ X1))\wedge(v5\_cat\_4\ (k23\_cat\_4\ X0\ X1)))))) \tag{3}$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0\ (k1\_tarski\ X0) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(v5\_cat\_4\ (k23\_cat\_4\ X0\ X1))\wedge(l2\_cat\_4\ (k23\_cat\_4\ X0\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.m1\_subset\_1\ (k1\_algstr\_1\ X0)\ (k1\_tarski\ X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(v1\_funct\_1\ (k18\_funcop\_1\ X0\ X1))\wedge((v1\_funct\_2\ (k18\_funcop\_1\ X0\ X1)\ (k1\_tarski\ X0)\ (k1\_tarski\ X1))\wedge(m1\_subset\_1\ (k18\_funcop\_1\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_tarski\ X0)\ (k1\_tarski\ X1))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1\_funct\_1\ (k17\_funcop\_1\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k17\_funcop\_1\ X0\ X1\ X2)\ (k2\_zfmisc\_1\ (k1\_tarski\ X0)\ (k1\_tarski\ X1))\ (k1\_tarski\ X2))\wedge(m1\_subset\_1\ (k17\_funcop\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_tarski\ X0)\ (k1\_tarski\ X1))\ (k1\_tarski\ X2))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.k23\_cat\_4\ X0\ X1 = g2\_cat\_4\ (k1\_tarski\ X0)\ (k1\_tarski\ X1)\ (k18\_funcop\_1\ X1\ X0)\ (k18\_funcop\_1\ X1\ X0)\ (k17\_funcop\_1\ X1\ X1\ X1)\ (k1\_algstr\_1\ X0)\ (k17\_funcop\_1\ X0\ X0\ X0)\ (k17\_funcop\_1\ X0\ X0\ X1)\ (k17\_funcop\_1\ X0\ X0\ X1) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski\ X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(X2 = X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l2\_cat\_4\ X0)\Rightarrow((v5\_cat\_4\ X0)\Rightarrow(X0 = g2\_cat\_4\ (u1\_struct\_0\ X0)\ (u4\_struct\_0\ X0)\ (u1\_graph\_1\ X0)\ (u2\_graph\_1\ X0)\ (u1\_cat\_1\ X0)\ (u5\_cat\_4\ X0)\ (u6\_cat\_4\ X0)\ (u7\_cat\_4\ X0)\ (u8\_cat\_4\ X0))) \tag{11}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (u4\_struct\_0\ (k23\_cat\_4\ X0\ X1)))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u4\_struct\_0\ (k23\_cat\_4\ X0\ X1)))\Rightarrow(X2 = X3))$$