t41_cat_3 (TMJ5TgUdF1LLMiSxEbkjeSFzWNYXxsAsCxg)

October 27, 2020

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 $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_cat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_graph\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k8\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l5\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_graph\_1 : \iota \Rightarrow o$ be given. Let $k2\_cat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(\neg v1\_xboole\_0\ X2) \Rightarrow (\forall X3.\ (m1\_subset\_1\ X3\ X2) \Rightarrow ((X1 \in X0) \Rightarrow (k7\_partfun1\ X2\ (k8\_funcop\_1\ X2\ X0\ X3)\ X1 = X3))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ X0\ X1) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))) \wedge ((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ X0\ X1) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))) \Rightarrow ((r2\_funct\_2\ X0\ X1\ X2\ X3) \Leftrightarrow (X2 = X3)) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0)))))))\wedge(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X3.(m1\_cat\_3\ X3\ X0\ X1\ X2)\Rightarrow((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X2\ (u4\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ (u4\_struct\_0\ X0))))))) \tag{4}$$

Assume the following.

$$\forall X0.(l5\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_graph\_1\ X0)\Rightarrow(l5\_struct\_0\ X0) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_cat\_1\ X0)\Rightarrow(l1\_graph\_1\ X0) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X0)\wedge(m1\_subset\_1\ X2\ X0))\Rightarrow((v1\_funct\_1\ (k8\_funcop\_1\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k8\_funcop\_1\ X0\ X1\ X2)\ X1\ X0)\wedge(m1\_subset\_1\ (k8\_funcop\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0)))))))\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X1\ (u4\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ (u4\_struct\_0\ X0))))))\Rightarrow((v1\_funct\_1\ (k2\_cat\_3\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k2\_cat\_3\ X0\ X1\ X2)\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (k2\_cat\_3\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ (u1\_struct\_0\ X0)))))) \tag{9}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0)))))))\Rightarrow(\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X1\ (u4\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ (u4\_struct\_0\ X0))))))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ (u1\_struct\_0\ X0))))))\Rightarrow((X3 = k2\_cat\_3\ X0\ X1\ X2)\Leftrightarrow(\forall X4.(X4 \in X1)\Rightarrow(k7\_partfun1\ (u1\_struct\_0\ X0)\ X3\ X4 = k3\_graph\_1\ X0\ (k7\_partfun1\ (u4\_struct\_0\ X0)\ X2\ X4)))))) \tag{10}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X2\ (u4\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ (u4\_struct\_0\ X0))))))\Rightarrow((m1\_cat\_3\ X3\ X0\ X1\ X2)\Leftrightarrow(r2\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (k2\_cat\_3\ X0\ X2\ X3)\ (k8\_funcop\_1\ (u1\_struct\_0\ X0)\ X2\ X1))))) \tag{11}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_cat\_1\ X2)\wedge((v3\_cat\_1\ X2)\wedge((v4\_cat\_1\ X2)\wedge((v5\_cat\_1\ X2)\wedge((v6\_cat\_1\ X2)\wedge(l1\_cat\_1\ X2))))))))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X2))\Rightarrow(\forall X4.(m1\_cat\_3\ X4\ X2\ X3\ X0)\Rightarrow((X1\in X0)\Rightarrow(k3\_graph\_1\ X2\ (k7\_partfun1\ (u4\_struct\_0\ X2)\ X4\ X1)=X3))))$$