t36_isocat_2 (TMJJW4eMMQEfK13cocqkmPCkV3NuKjfBVCe)

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 $m2\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_nattra\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8\_cat\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_isocat\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m1\_nattra\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k14\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\neg(X0 \in X1) \wedge (v1\_xboole\_0\ X1) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_cat\_1\ X0) \wedge ((v3\_cat\_1\ X0) \wedge ((v4\_cat\_1\ X0) \wedge ((v5\_cat\_1\ X0) \wedge ((v6\_cat\_1\ X0) \wedge (l1\_cat\_1\ X0)))))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((\neg v11\_struct\_0\ X1) \wedge ((v2\_cat\_1\ X1) \wedge ((v3\_cat\_1\ X1) \wedge ((v4\_cat\_1\ X1) \wedge ((v5\_cat\_1\ X1) \wedge ((v6\_cat\_1\ X1) \wedge (l1\_cat\_1\ X1)))))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge ((\neg v11\_struct\_0\ X2) \wedge ((v2\_cat\_1\ X2) \wedge ((v3\_cat\_1\ X2) \wedge ((v4\_cat\_1\ X2) \wedge ((v5\_cat\_1\ X2) \wedge ((v6\_cat\_1\ X2) \wedge (l1\_cat\_1\ X2)))))))) \Rightarrow (\forall X3.(m2\_cat\_1\ X3\ X0\ X1) \Rightarrow (\forall X4.(m2\_cat\_1\ X4\ X0\ X1) \Rightarrow (\forall X5.(m2\_cat\_1\ X5\ X0\ X2) \Rightarrow (\forall X6.(m2\_cat\_1\ X6\ X0\ X2) \Rightarrow (((r1\_nattra\_1\ X0\ X1\ X3\ X4) \wedge (r1\_nattra\_1\ X0\ X2\ X5\ X6)) \Rightarrow (\forall X7.(m1\_nattra\_1\ X7\ X0\ X1\ X3\ X4) \Rightarrow (\forall X8.(m1\_nattra\_1\ X8\ X0\ X2\ X5\ X6) \Rightarrow (\forall X9.(m1\_subset\_1\ X9\ (u1\_struct\_0\ X0)) \Rightarrow (k3\_funct\_2\ (u1\_struct\_0\ X0)\ (k2\_zfmisc\_1\ (u4\_struct\_0\ X1)\ (u4\_struct\_0\ X2))\ (k14\_funct\_3\ (u1\_struct\_0\ X0)\ (u4\_struct\_0\ X1)\ (u4\_struct\_0\ X2)\ X7\ X8)\ X9 \in k2\_cat\_1\ (k8\_cat\_2\ X1\ X2)\ (k8\_cat\_1\ X0\ (k8\_cat\_2\ X1\ X2)\ (k8\_isocat\_2\ X0\ X1\ X2\ X3\ X5)\ X9)\ (k8\_cat\_1\ X0\ (k8\_cat\_2\ X1\ X2)\ (k8\_isocat\_2\ X0\ X1\ X2\ X4\ X6)\ X9)))))))))))) \tag{2}$$

Assume the following.

$$v1\_xboole\_0\ k1\_xboole\_0 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\wedge(((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1))))))))\wedge((m2\_cat\_1\ X2\ X0\ X1)\wedge(m2\_cat\_1\ X3\ X0\ X1))))\Rightarrow(\exists X4.\ m1\_nattra\_1\ X4\ X0\ X1\ X2\ X3) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\wedge(((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1))))))))\wedge(((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_cat\_1\ X2)\wedge((v3\_cat\_1\ X2)\wedge((v4\_cat\_1\ X2)\wedge((v5\_cat\_1\ X2)\wedge((v6\_cat\_1\ X2)\wedge(l1\_cat\_1\ X2))))))))\wedge((m2\_cat\_1\ X3\ X0\ X1)\wedge(m2\_cat\_1\ X4\ X0\ X2)))))\Rightarrow(m2\_cat\_1\ (k8\_isocat\_2\ X0\ X1\ X2\ X3\ X4)\ X0\ (k8\_cat\_2\ X1\ X2)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\wedge((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1))))))))\Rightarrow((\neg v2\_struct\_0\ (k8\_cat\_2\ X0\ X1))\wedge((\neg v11\_struct\_0\ (k8\_cat\_2\ X0\ X1))\wedge((v2\_cat\_1\ (k8\_cat\_2\ X0\ X1))\wedge((v3\_cat\_1\ (k8\_cat\_2\ X0\ X1))\wedge((v4\_cat\_1\ (k8\_cat\_2\ X0\ X1))\wedge((v5\_cat\_1\ (k8\_cat\_2\ X0\ X1))\wedge((v6\_cat\_1\ (k8\_cat\_2\ X0\ X1))\wedge(l1\_cat\_1\ (k8\_cat\_2\ X0\ X1))))))))) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1))))))))\Rightarrow(\forall X2.(m2\_cat\_1\ X2\ X0\ X1)\Rightarrow(\forall X3.(m2\_cat\_1\ X3\ X0\ X1)\Rightarrow((r1\_nattra\_1\ X0\ X1\ X2\ X3)\Leftrightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(k2\_cat\_1\ X1\ (k8\_cat\_1\ X0\ X1\ X2\ X4)\ (k8\_cat\_1\ X0\ X1\ X3\ X4)\neq k1\_xboole\_0)))))) \tag{7}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0)))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1)))))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_cat\_1\ X2)\wedge((v3\_cat\_1\ X2)\wedge((v4\_cat\_1\ X2)\wedge((v5\_cat\_1\ X2)\wedge((v6\_cat\_1\ X2)\wedge(l1\_cat\_1\ X2)))))))\Rightarrow(\forall X3.(m2\_cat\_1\ X3\ X0\ X1)\Rightarrow(\forall X4.(m2\_cat\_1\ X4\ X0\ X1)\Rightarrow(\forall X5.(m2\_cat\_1\ X5\ X0\ X2)\Rightarrow(\forall X6.(m2\_cat\_1\ X6\ X0\ X2)\Rightarrow(((r1\_nattra\_1\ X0\ X1\ X3\ X4)\wedge(r1\_nattra\_1\ X0\ X2\ X5\ X6))\Rightarrow(r1\_nattra\_1\ X0\ (k8\_cat\_2\ X1\ X2)\ (k8\_isocat\_2\ X0\ X1\ X2\ X3\ X5)\ (k8\_isocat\_2\ X0\ X1\ X2\ X4\ X6)))))))))$$