t44_isocat_1 (TMYYEj8xVd4ea4cAfWFHJ2xLmDEmojwPaLi)

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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 $m2\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_nattra\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_cat\_1 : \iota \Rightarrow \iota$ be given. Let $k9\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_partfun1 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_cat\_1\ X0) \wedge ((v3\_cat\_1\ X0) \wedge ((v4\_cat\_1\ X0) \wedge ((v5\_cat\_1\ X0) \wedge ((v6\_cat\_1\ X0) \wedge (l1\_cat\_1\ X0)))))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((\neg v11\_struct\_0\ X1) \wedge ((v2\_cat\_1\ X1) \wedge ((v3\_cat\_1\ X1) \wedge ((v4\_cat\_1\ X1) \wedge ((v5\_cat\_1\ X1) \wedge ((v6\_cat\_1\ X1) \wedge (l1\_cat\_1\ X1)))))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge ((\neg v11\_struct\_0\ X2) \wedge ((v2\_cat\_1\ X2) \wedge ((v3\_cat\_1\ X2) \wedge ((v4\_cat\_1\ X2) \wedge ((v5\_cat\_1\ X2) \wedge ((v6\_cat\_1\ X2) \wedge (l1\_cat\_1\ X2)))))))) \Rightarrow (\forall X3.((\neg v2\_struct\_0\ X3) \wedge ((\neg v11\_struct\_0\ X3) \wedge ((v2\_cat\_1\ X3) \wedge ((v3\_cat\_1\ X3) \wedge ((v4\_cat\_1\ X3) \wedge ((v5\_cat\_1\ X3) \wedge ((v6\_cat\_1\ X3) \wedge (l1\_cat\_1\ X3)))))))) \Rightarrow (\forall X4.(m2\_cat\_1\ X4\ X0\ X1) \Rightarrow (\forall X5.(m2\_cat\_1\ X5\ X2\ X3) \Rightarrow (\forall X6.(m2\_cat\_1\ X6\ X1\ X2) \Rightarrow (\forall X7.(m2\_cat\_1\ X7\ X1\ X2) \Rightarrow ((r3\_nattra\_1\ X1\ X2\ X6\ X7) \Rightarrow ((r3\_nattra\_1\ X1\ X3\ (k9\_cat\_1\ X1\ X2\ X3\ X6\ X5)\ (k9\_cat\_1\ X1\ X2\ X3\ X7\ X5)) \wedge (r3\_nattra\_1\ X0\ X2\ (k9\_cat\_1\ X0\ X1\ X2\ X4\ X6)\ (k9\_cat\_1\ X0\ X1\ X2\ X4\ X7)))))))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow((r2\_relset\_1\ X0\ X1\ (k4\_relset\_1\ X0\ X0\ X0\ X1\ (k6\_partfun1\ X0)\ X2)\ X2)\wedge(r2\_relset\_1\ X0\ X1\ (k4\_relset\_1\ X0\ X1\ X1\ X1\ X2\ (k6\_partfun1\ X1))\ X2)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\Rightarrow((r2\_relset\_1\ X0\ X1\ X2\ X3)\Leftrightarrow(X2 = X3)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0)))))))\wedge(((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1)))))))\wedge(((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_cat\_1\ X2)\wedge((v3\_cat\_1\ X2)\wedge((v4\_cat\_1\ X2)\wedge((v5\_cat\_1\ X2)\wedge((v6\_cat\_1\ X2)\wedge(l1\_cat\_1\ X2)))))))\wedge((m2\_cat\_1\ X3\ X0\ X1)\wedge(m2\_cat\_1\ X4\ X1\ X2)))))\Rightarrow(k9\_cat\_1\ X0\ X1\ X2\ X3\ X4 = k3\_relat\_1\ X3\ X4) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.((m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3))))\Rightarrow(k4\_relset\_1\ X0\ X1\ X2\ X3\ X4\ X5 = k3\_relat\_1\ X4\ X5) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0)))))))\wedge((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1)))))))))\Rightarrow(\forall X2.(m2\_cat\_1\ X2\ X0\ X1)\Rightarrow((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u4\_struct\_0\ X0)\ (u4\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u4\_struct\_0\ X0)\ (u4\_struct\_0\ X1))))))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\wedge(((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1))))))))\wedge(((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_cat\_1\ X2)\wedge((v3\_cat\_1\ X2)\wedge((v4\_cat\_1\ X2)\wedge((v5\_cat\_1\ X2)\wedge((v6\_cat\_1\ X2)\wedge(l1\_cat\_1\ X2))))))))\wedge((m2\_cat\_1\ X3\ X0\ X1)\wedge(m2\_cat\_1\ X4\ X1\ X2)))))\Rightarrow(m2\_cat\_1\ (k9\_cat\_1\ X0\ X1\ X2\ X3\ X4)\ X0\ X2) \tag{7}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(m2\_cat\_1\ (k10\_cat\_1\ X0)\ X0\ X0) \tag{8}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(k10\_cat\_1\ X0 = k6\_partfun1\ (u4\_struct\_0\ X0)) \tag{9}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_cat\_1\ X1)\wedge((v3\_cat\_1\ X1)\wedge((v4\_cat\_1\ X1)\wedge((v5\_cat\_1\ X1)\wedge((v6\_cat\_1\ X1)\wedge(l1\_cat\_1\ X1))))))))\Rightarrow(\forall X2.(m2\_cat\_1\ X2\ X0\ X1)\Rightarrow(\forall X3.(m2\_cat\_1\ X3\ X1\ X0)\Rightarrow(\forall X4.(m2\_cat\_1\ X4\ X0\ X0)\Rightarrow((r3\_nattra\_1\ X0\ X0\ X4\ (k10\_cat\_1\ X0))\Rightarrow((r3\_nattra\_1\ X0\ X1\ (k9\_cat\_1\ X0\ X0\ X1\ X4\ X2)\ X2)\wedge(r3\_nattra\_1\ X1\ X0\ (k9\_cat\_1\ X1\ X0\ X0\ X3\ X4)\ X3)))))))$$