t42_lattice2 (TMG3ag8NL3Rpd31P1dY63HB6jSia23NHTFR)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v10\_lattices : \iota \Rightarrow o$ be given. Let $l3\_lattices : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k5\_finsub\_1 : \iota \Rightarrow \iota$ 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 $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k3\_lattice2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7\_lattices : \iota \Rightarrow o$ be given. Let $l1\_lattices : \iota \Rightarrow o$ be given. Let $u1\_lattices : \iota \Rightarrow \iota$ be given. Let $v6\_lattices : \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l2\_lattices : \iota \Rightarrow o$ be given. Let $v4\_lattices : \iota \Rightarrow o$ be given. Let $v5\_lattices : \iota \Rightarrow o$ be given. Let $v8\_lattices : \iota \Rightarrow o$ be given. Let $v9\_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0\ X1) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0))))) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k5\_finsub\_1\ X1)) \Rightarrow (\forall X4.((v1\_funct\_1\ X4) \wedge ((v1\_funct\_2\ X4\ X1\ X0) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0))))) \Rightarrow (((v1\_binop\_1\ X2\ X0) \wedge ((v2\_binop\_1\ X2\ X0) \wedge (v3\_binop\_1\ X2\ X0))) \Rightarrow ((X3 = k1\_xboole\_0) \vee (\forall X5.(m1\_subset\_1\ X5\ X0) \Rightarrow ((\forall X6.(m1\_subset\_1\ X6\ X1) \Rightarrow ((X6 \in X3) \Rightarrow (k3\_funct\_2\ X1\ X0\ X4\ X6 = X5))) \Rightarrow (k7\_setwiseo\ X1\ X0\ X2\ X3\ X4 = X5)))))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v7\_lattices\ X0) \wedge (l1\_lattices\ X0))) \Rightarrow ((v1\_funct\_1\ (u1\_lattices\ X0)) \wedge ((v1\_funct\_2\ (u1\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)) \wedge (v2\_binop\_1\ (u1\_lattices\ X0)\ (u1\_struct\_0\ X0)))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v6\_lattices\ X0)\wedge(l1\_lattices\ X0)))\Rightarrow((v1\_funct\_1\ (u1\_lattices\ X0))\wedge((v1\_funct\_2\ (u1\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(v1\_binop\_1\ (u1\_lattices\ X0)\ (u1\_struct\_0\ X0)))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge(l3\_lattices\ X0)))\Rightarrow((v1\_funct\_1\ (u1\_lattices\ X0))\wedge((v1\_funct\_2\ (u1\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(v3\_binop\_1\ (u1\_lattices\ X0)\ (u1\_struct\_0\ X0)))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_lattices\ X0)\Rightarrow((v1\_funct\_1\ (u1\_lattices\ X0))\wedge((v1\_funct\_2\ (u1\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (u1\_lattices\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)))))) \tag{6}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((l1\_lattices\ X0)\wedge(l2\_lattices\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.(l2\_lattices\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{8}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v10\_lattices\ X1)\wedge(l3\_lattices\ X1)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (u1\_struct\_0\ X1))))))\Rightarrow(k3\_lattice2\ X0\ X1\ X2\ X3 = k7\_setwiseo\ X0\ (u1\_struct\_0\ X1)\ (u1\_lattices\ X1)\ X2\ X3)))) \tag{9}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow(((\neg v2\_struct\_0\ X0)\wedge(v10\_lattices\ X0))\Rightarrow((\neg v2\_struct\_0\ X0)\wedge((v4\_lattices\ X0)\wedge((v5\_lattices\ X0)\wedge((v6\_lattices\ X0)\wedge((v7\_lattices\ X0)\wedge((v8\_lattices\ X0)\wedge(v9\_lattices\ X0))))))) \tag{10}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge(l3\_lattices\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(\neg v1\_xboole\_0\ X2)\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k5\_finsub\_1\ X2))\Rightarrow(\forall X4.((v1\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ X2\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ (u1\_struct\_0\ X0))))))\Rightarrow((\forall X5.(m1\_subset\_1\ X5\ X2)\Rightarrow((X5\in X3)\Rightarrow(k3\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ X4\ X5 = X1)))\Rightarrow((X3 = k1\_xboole\_0)\vee(k3\_lattice2\ X2\ X0\ X3\ X4 = X1)))))))$$