t49_lattice2 (TMMREmdaucpmL-duDi8WdgM1YoT1TmcZPZ1z)

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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 $v14\_lattices : \iota \Rightarrow o$ be given. Let $v13\_lattices : \iota \Rightarrow o$ be given. Let $k1\_lattice2 : \iota \Rightarrow \iota$ be given. Let $v4\_lattices : \iota \Rightarrow o$ be given. Let $l2\_lattices : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $g3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_lattices : \iota \Rightarrow o$ be given. Let $u1\_lattices : \iota \Rightarrow \iota$ be given. Let $v3\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u2\_lattices : \iota \Rightarrow \iota$ be given. Let $l1\_lattices : \iota \Rightarrow o$ be given. Let $k2\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5\_lattices : \iota \Rightarrow o$ be given. Let $v6\_lattices : \iota \Rightarrow o$ be given. Let $v7\_lattices : \iota \Rightarrow o$ be given. Let $v8\_lattices : \iota \Rightarrow o$ be given. Let $v9\_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((v4\_lattices\ X0) \wedge (l2\_lattices\ X0))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow (k3\_lattices\ X0\ X1\ X2 = k1\_lattices\ X0\ X1\ X2) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0))))) \wedge ((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0))))))) \Rightarrow (\forall X3.\forall X4.\forall X5.(g3\_lattices\ X0\ X1\ X2 = g3\_lattices\ X3\ X4\ X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v10\_lattices\ X0) \wedge (l3\_lattices\ X0))) \Rightarrow ((v3\_lattices\ (k1\_lattice2\ X0)) \wedge (v10\_lattices\ (k1\_lattice2\ X0))) \tag{3}$$

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.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge(l3\_lattices\ X0)))\Rightarrow((v1\_funct\_1\ (u2\_lattices\ X0))\wedge((v1\_funct\_2\ (u2\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(v3\_binop\_1\ (u2\_lattices\ X0)\ (u1\_struct\_0\ X0)))) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_lattices\ X0))\Rightarrow((\neg v2\_struct\_0\ (k1\_lattice2\ X0))\wedge(v3\_lattices\ (k1\_lattice2\ X0))) \tag{6}$$

Assume the following.

$$\forall X0.(l2\_lattices\ X0)\Rightarrow((v1\_funct\_1\ (u2\_lattices\ X0))\wedge((v1\_funct\_2\ (u2\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (u2\_lattices\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)))))) \tag{7}$$

Assume the following.

$$\forall X0.(l1\_lattices\ X0)\Rightarrow((v1\_funct\_1\ (u1\_lattices\ X0))\wedge((v1\_funct\_2\ (u1\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (u1\_lattices\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)))))) \tag{8}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((l1\_lattices\ X0)\wedge(l2\_lattices\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((v3\_lattices\ (k1\_lattice2\ X0))\wedge(l3\_lattices\ (k1\_lattice2\ X0))) \tag{10}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_lattices\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(k2\_lattices\ X0\ X1\ X2 = k5\_binop\_1\ (u1\_struct\_0\ X0)\ (u1\_lattices\ X0)\ X1\ X2))) \tag{11}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow(k1\_lattice2\ X0 = g3\_lattices\ (u1\_struct\_0\ X0)\ (u1\_lattices\ X0)\ (u2\_lattices\ X0)) \tag{12}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l2\_lattices\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(k1\_lattices\ X0\ X1\ X2 = k5\_binop\_1\ (u1\_struct\_0\ X0)\ (u2\_lattices\ X0)\ X1\ X2))) \tag{13}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l2\_lattices\ X0))\Rightarrow((v14\_lattices\ X0)\Leftrightarrow(\exists X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((k1\_lattices\ X0\ X1\ X2 = X1)\wedge(k1\_lattices\ X0\ X2\ X1 = X1))))) \tag{14}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_lattices\ X0))\Rightarrow((v13\_lattices\ X0)\Leftrightarrow(\exists X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((k2\_lattices\ X0\ X1\ X2 = X1)\wedge(k2\_lattices\ X0\ X2\ X1 = X1))))) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v4\_lattices\ X0)\wedge(l2\_lattices\ X0)))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(k3\_lattices\ X0\ X1\ X2 = k3\_lattices\ X0\ X2\ X1) \tag{16}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow(((\neg v2\_struct\_0\ X0)\wedge(v10\_lattices\ X0))\Rightarrow((\neg v2\_struct\_0\ X0)\wedge((v4\_lattices\ X0)\wedge((v5\_lattices\ X0)\wedge((v6\_lattices\ X0)\wedge((v7\_lattices\ X0)\wedge((v8\_lattices\ X0)\wedge(v9\_lattices\ X0))))))))) \tag{17}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((v3\_lattices\ X0)\Rightarrow(X0 = g3\_lattices\ (u1\_struct\_0\ X0)\ (u2\_lattices\ X0)\ (u1\_lattices\ X0))) \tag{18}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge(l3\_lattices\ X0)))\Rightarrow((v14\_lattices\ X0)\Leftrightarrow(v13\_lattices\ (k1\_lattice2\ X0)))$$