t12_lattice2 (TMM1GwkY4n8p8dGisDzBR8S8qfzmLK34LyT)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l3\_lattices : \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_lattice2 : \iota \Rightarrow \iota$ be given. Let $r1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2\_lattices : \iota \Rightarrow \iota$ be given. Let $u1\_lattices : \iota \Rightarrow \iota$ 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 $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $g3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v3\_lattices : \iota \Rightarrow o$ be given. Let $l2\_lattices : \iota \Rightarrow o$ be given. Let $l1\_lattices : \iota \Rightarrow o$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))) \wedge ((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))) \Rightarrow (\forall X3.\forall X4.\forall X5.\ (g3\_lattices\ X0\ X1\ X2 = g3\_lattices\ X3\ X4\ X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{2}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l2\_lattices\ X0) \Rightarrow ((v1\_funct\_1\ (u2\_lattices\ X0)) \wedge ((v1\_funct\_2\ (u2\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ (u2\_lattices\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))))))) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_lattices\ X0)\Rightarrow((v1\_funct\_1\ (u1\_lattices\ X0))\wedge((v1\_funct\_2\ (u1\_lattices\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (u1\_lattices\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0))))))) \tag{5}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((l1\_lattices\ X0)\wedge(l2\_lattices\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.(l2\_lattices\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{7}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((v3\_lattices\ (k1\_lattice2\ X0))\wedge(l3\_lattices\ (k1\_lattice2\ X0))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ X1)\Rightarrow(\forall X2.\forall X3.(\neg v1\_xboole\_0\ X3)\Rightarrow(\forall X4.((v1\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ X0\ X1)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\Rightarrow(\forall X5.((v1\_funct\_1\ X5)\wedge((v1\_funct\_2\ X5\ X2\ X3)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3)))))\Rightarrow((r1\_funct\_2\ X0\ X1\ X2\ X3\ X4\ X5)\Leftrightarrow((X0 = X2)\wedge(\forall X6.(m1\_subset\_1\ X6\ X0)\Rightarrow(k1\_funct\_1\ X4\ X6 = k1\_funct\_1\ X5\ X6))))))) \tag{9}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow(k1\_lattice2\ X0 = g3\_lattices\ (u1\_struct\_0\ X0)\ (u1\_lattices\ X0)\ (u2\_lattices\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((v3\_lattices\ X0)\Rightarrow(X0 = g3\_lattices\ (u1\_struct\_0\ X0)\ (u2\_lattices\ X0)\ (u1\_lattices\ X0))) \tag{11}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_lattices\ X0))\Rightarrow((u1\_struct\_0\ X0 = u1\_struct\_0\ (k1\_lattice2\ X0))\wedge((r1\_funct\_2\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ (k1\_lattice2\ X0))\ (u1\_struct\_0\ (k1\_lattice2\ X0)))\ (u1\_struct\_0\ (k1\_lattice2\ X0))\ (u2\_lattices\ X0)\ (u1\_lattices\ (k1\_lattice2\ X0)))\wedge(r1\_funct\_2\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_struct\_0\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ (k1\_lattice2\ X0))\ (u1\_struct\_0\ (k1\_lattice2\ X0)))\ (u1\_struct\_0\ (k1\_lattice2\ X0))\ (u1\_lattices\ X0)\ (u2\_lattices\ (k1\_lattice2\ X0))))))$$