t41_lattice2 (TMJxVLrXAnJUTzxhoLM-CosC9x9rP8PT4fvB)

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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 $r3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_lattice2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5\_lattices : \iota \Rightarrow o$ be given. Let $l2\_lattices : \iota \Rightarrow o$ be given. Let $r1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6\_lattices : \iota \Rightarrow o$ be given. Let $v8\_lattices : \iota \Rightarrow o$ be given. Let $v9\_lattices : \iota \Rightarrow o$ be given. Let $l1\_lattices : \iota \Rightarrow o$ be given. Let $v4\_lattices : \iota \Rightarrow o$ be given. Let $v7\_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v5\_lattices\ X0) \wedge (l2\_lattices\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (((r1\_lattices\ X0\ X1\ X2) \wedge (r1\_lattices\ X0\ X2\ X3)) \Rightarrow (r1\_lattices\ X0\ X1\ X3))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v10\_lattices\ X0) \wedge (l3\_lattices\ X0))) \Rightarrow (\forall X1.(\neg v1\_xboole\_0\ X1) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ X1) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k5\_finsub\_1\ X1)) \Rightarrow (\forall X4.((v1\_funct\_1\ X4) \wedge ((v1\_funct\_2\ X4\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ (u1\_struct\_0\ X0)))))) \Rightarrow ((X2 \in X3) \Rightarrow (r3\_lattices\ X0\ (k3\_lattice2\ X1\ X0\ X3\ X4)\ (k3\_funct\_2\ X1\ (u1\_struct\_0\ X0)\ X4\ X2))))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((v6\_lattices\ X0) \wedge ((v8\_lattices\ X0) \wedge ((v9\_lattices\ X0) \wedge (l3\_lattices\ X0))))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow ((r3\_lattices\ X0\ X1\ X2) \Leftrightarrow (r1\_lattices\ X0\ X1\ X2)) \tag{3}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((l1\_lattices\ X0)\wedge(l2\_lattices\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge (((\neg v2\_struct\_0\ X1)\wedge((v10\_lattices\ X1)\wedge(l3\_lattices\ X1)))\wedge ((m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0))\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (u1\_struct\_0\ X1)))))))))\Rightarrow(m1\_subset\_1\ (k3\_lattice2\ X0\ X1\ X2\ X3)\ (u1\_struct\_0\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge (((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ X0)))\Rightarrow(m1\_subset\_1\ (k3\_funct\_2\ X0\ X1\ X2\ X3)\ X1) \tag{6}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow(((\neg v2\_struct\_0\ X0)\wedge(v10\_lattices\ X0))\Rightarrow((\neg v2\_struct\_0\ X0)\wedge((v4\_lattices\ X0)\wedge((v5\_lattices\ X0)\wedge((v6\_lattices\ X0)\wedge((v7\_lattices\ X0)\wedge((v8\_lattices\ X0)\wedge(v9\_lattices\ X0))))))) \tag{7}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge(l3\_lattices\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(\neg v1\_xboole\_0\ X2)\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k5\_finsub\_1\ X2))\Rightarrow(\forall X4.((v1\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ X2\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ (u1\_struct\_0\ X0))))))\Rightarrow((\exists X5.(m1\_subset\_1\ X5\ X2)\wedge((X5\in X3)\wedge(r3\_lattices\ X0\ (k3\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ X4\ X5)\ X1)))\Rightarrow(r3\_lattices\ X0\ (k3\_lattice2\ X2\ X0\ X3\ X4)\ X1))))))$$