t25_openlatt (TMaZARSBb-TYzcZGtFbd3B1FXy6uXaGKum1h)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v10\_lattices : \iota \Rightarrow o$ be given. Let $v11\_lattices : \iota \Rightarrow o$ 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 $k15\_openlatt : \iota \Rightarrow \iota$ be given. Let $k3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6\_lattices : \iota \Rightarrow o$ be given. Let $l1\_lattices : \iota \Rightarrow o$ be given. Let $k2\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4\_lattices : \iota \Rightarrow o$ be given. Let $l2\_lattices : \iota \Rightarrow o$ be given. Let $k1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_openlatt : \iota \Rightarrow \iota$ be given. Let $k12\_openlatt : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11\_openlatt : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k14\_openlatt : \iota \Rightarrow \iota$ be given. Let $k13\_openlatt : \iota \Rightarrow \iota$ be given. Let $v3\_lattices : \iota \Rightarrow o$ be given. Let $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_lattices : \iota \Rightarrow \iota$ be given. Let $u2\_lattices : \iota \Rightarrow \iota$ be given. Let $v5\_lattices : \iota \Rightarrow o$ 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.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((v6\_lattices\ X0) \wedge (l1\_lattices\ X0))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow (k4\_lattices\ X0\ X1\ X2 = k2\_lattices\ X0\ X1\ X2) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((v4\_lattices\ X0) \wedge (l2\_lattices\ X0))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow (k3\_lattices\ X0\ X1\ X2 = k1\_lattices\ X0\ X1\ X2) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\wedge((m1\_subset\_1\ X1\ (k9\_openlatt\ X0))\wedge(m1\_subset\_1\ X2\ (k9\_openlatt\ X0))))\Rightarrow(k12\_openlatt\ X0\ X1\ X2 = k3\_xboole\_0\ X1\ X2) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\wedge((m1\_subset\_1\ X1\ (k9\_openlatt\ X0))\wedge(m1\_subset\_1\ X2\ (k9\_openlatt\ X0))))\Rightarrow(k11\_openlatt\ X0\ X1\ X2 = k2\_xboole\_0\ X1\ X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ X0)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))\Rightarrow(\forall X3.\forall X4.\forall X5.(g3\_lattices\ X0\ X1\ X2 = g3\_lattices\ X3\ X4\ X5)\Rightarrow((X0 = X3)\wedge((X1 = X4)\wedge(X2 = X5)))) \tag{5}$$

Assume the following.

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

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow((\neg v2\_struct\_0\ (k15\_openlatt\ X0))\wedge((v10\_lattices\ (k15\_openlatt\ X0))\wedge(l3\_lattices\ (k15\_openlatt\ X0)))) \tag{7}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow((v1\_funct\_1\ (k14\_openlatt\ X0))\wedge((v1\_funct\_2\ (k14\_openlatt\ X0)\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))\wedge(m1\_subset\_1\ (k14\_openlatt\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0)))))) \tag{8}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow((v1\_funct\_1\ (k13\_openlatt\ X0))\wedge((v1\_funct\_2\ (k13\_openlatt\ X0)\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))\wedge(m1\_subset\_1\ (k13\_openlatt\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))))))) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ X0)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0))))))\Rightarrow((v3\_lattices\ (g3\_lattices\ X0\ X1\ X2))\wedge(l3\_lattices\ (g3\_lattices\ X0\ X1\ X2))) \tag{10}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow(\forall X1.((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))))))\Rightarrow((X1 = k13\_openlatt\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_openlatt\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k9\_openlatt\ X0))\Rightarrow(k5\_binop\_1\ (k9\_openlatt\ X0)\ X1\ X2\ X3 = k11\_openlatt\ X0\ X2\ X3))))) \tag{11}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_lattices\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(k2\_lattices\ X0\ X1\ X2 = k5\_binop\_1\ (u1\_struct\_0\ X0)\ (u1\_lattices\ X0)\ X1\ X2))) \tag{12}$$

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.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow(k15\_openlatt\ X0 = g3\_lattices\ (k9\_openlatt\ X0)\ (k13\_openlatt\ X0)\ (k14\_openlatt\ X0)) \tag{14}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow(\forall X1.((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_openlatt\ X0)\ (k9\_openlatt\ X0))\ (k9\_openlatt\ X0))))))\Rightarrow((X1 = k14\_openlatt\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_openlatt\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k9\_openlatt\ X0))\Rightarrow(k5\_binop\_1\ (k9\_openlatt\ X0)\ X1\ X2\ X3 = k12\_openlatt\ X0\ X2\ X3))))) \tag{15}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow(((\neg v2\_struct\_0\ X0)\wedge(v10\_lattices\ X0))\Rightarrow((\neg v2\_struct\_0\ X0)\wedge((v4\_lattices\ X0)\wedge((v5\_lattices\ X0)\wedge((v6\_lattices\ X0)\wedge((v7\_lattices\ X0)\wedge((v8\_lattices\ X0)\wedge(v9\_lattices\ X0))))))))) \tag{16}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((v3\_lattices\ X0)\Rightarrow(X0 = g3\_lattices\ (u1\_struct\_0\ X0)\ (u2\_lattices\ X0)\ (u1\_lattices\ X0))) \tag{17}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge((v11\_lattices\ X0)\wedge(l3\_lattices\ X0))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ (k15\_openlatt\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ (k15\_openlatt\ X0)))\Rightarrow((k3\_lattices\ (k15\_openlatt\ X0)\ X1\ X2 = k2\_xboole\_0\ X1\ X2)\wedge(k4\_lattices\ (k15\_openlatt\ X0)\ X1\ X2 = k3\_xboole\_0\ X1\ X2))))$$