

t19\_lattice6 (TMPt-  
peZSxw9n5uLbmcZKTB8msD7DNCZA8K8)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $v4\_lattice3 : \iota \Rightarrow o$  be given. Let  $v2\_lattice6 : \iota \Rightarrow o$  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  $k5\_lattices : \iota \Rightarrow \iota$  be given. Let  $v4\_lattice6 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_waybel\_6 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_lattice3 : \iota \Rightarrow \iota$  be given. Let  $v13\_lattices : \iota \Rightarrow o$  be given. Let  $r1\_lattice6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v1\_lattice3 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $k13\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v2\_lattice3 : \iota \Rightarrow o$  be given. Let  $r3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v15\_lattices : \iota \Rightarrow o$  be given. Let  $v14\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v13\_lattices \\ & X0) \wedge ((v2\_lattice6 X0) \wedge (l3\_lattices X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow ((X1 = k5\_lattices X0) \Leftrightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0)) \Rightarrow (\neg r1\_lattice6 X0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow ((X2 \neq X3) \Rightarrow (((r1\_lattice6 X0 X2 X1) \wedge (r1\_lattice6 \\ & X0 X3 X1)) \Rightarrow (X1 = k4\_lattices X0 X3 X2)) \wedge (((r1\_lattice6 X0 X1 X2) \wedge \\ & (r1\_lattice6 X0 X1 X3)) \Rightarrow (X1 = k3\_lattices X0 X3 X2))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v4\_lattice3 \\ & X0) \wedge (l3\_lattices X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow ((v4\_lattice6 X1 X0) \Rightarrow (v3\_waybel\_6 (k4\_lattice3 X0 X1) (k3\_lattice3 \\ & X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v4\_lattice3 \\ & X0) \wedge ((v2\_lattice6 X0) \wedge (l3\_lattices X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow ((v4\_lattice6 X1 X0) \Leftrightarrow (\exists X2.(m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0)) \wedge ((r1\_lattice6 X0 X1 X2) \wedge (\forall X3.(m1\_subset\_1 \\ & X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_lattice6 X0 X1 X3) \Rightarrow (X3 = X2))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ & X0) \wedge (l1\_orders\_2 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k13\_lattice3 X0 X1 X2 = k10\_lattice3 \\ & X0 X1 X2) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((k4\_lattices X0 X1 X2 = k12\_lattice3 \\ & (k3\_lattice3 X0) (k4\_lattice3 X0 X1) (k4\_lattice3 X0 X2)) \wedge (k3\_lattices \\ & X0 X1 X2 = k13\_lattice3 (k3\_lattice3 X0) (k4\_lattice3 X0 X1) (k4\_lattice3 \\ & X0 X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow ((\neg v2\_struct\_0 (k3\_lattice3 X0)) \wedge ((v1\_orders\_2 (k3\_lattice3 \\ & X0)) \wedge ((v3\_orders\_2 (k3\_lattice3 X0)) \wedge ((v4\_orders\_2 (k3\_lattice3 \\ & X0)) \wedge (v5\_orders\_2 (k3\_lattice3 X0)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow ((v1\_orders\_2 (k3\_lattice3 X0)) \wedge ((v3\_orders\_2 (k3\_lattice3 \\ & X0)) \wedge ((v4\_orders\_2 (k3\_lattice3 X0)) \wedge ((v5\_orders\_2 (k3\_lattice3 \\ & X0)) \wedge ((v1\_lattice3 (k3\_lattice3 X0)) \wedge (v2\_lattice3 (k3\_lattice3 \\ & X0))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge \\ & (l3\_lattices X0))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 \\ & (k4\_lattice3 X0 X1) (u1\_struct\_0 (k3\_lattice3 X0))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices X0))) \Rightarrow ((v1\_orders\_2 (k3\_lattice3 X0)) \wedge ((v3\_orders\_2 (k3\_lattice3 X0)) \wedge ((v4\_orders\_2 (k3\_lattice3 X0)) \wedge ((v5\_orders\_2 (k3\_lattice3 X0)) \wedge (l1\_orders\_2 (k3\_lattice3 X0)))))) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_lattice6 X0 X1 X2) \Leftrightarrow ((X1 \neq X2) \wedge ((r3\_lattices X0 X2 X1) \wedge (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\neg (r3\_lattices X0 X2 X3) \wedge ((r3\_lattices X0 X3 X1) \wedge ((X3 \neq X1) \wedge (X3 \neq X2)))))))))) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v3\_waybel\_6 X1 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\neg (X1 = k10\_lattice3 X0 X2 X3) \wedge ((X2 \neq X1) \wedge (X3 \neq X1))))))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k4\_lattice3 X0 X1 = X1)) \quad (13)$$

Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v15\_lattices X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge ((v13\_lattices X0) \wedge (v14\_lattices X0)))) \quad (14)$$

Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (v4\_lattice3 X0))) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (v15\_lattices X0)))) \quad (15)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v4\_lattice3 X0) \wedge ((v2\_lattice6 X0) \wedge (l3\_lattices X0))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((X1 \neq k5\_lattices X0) \Rightarrow ((v4\_lattice6 X1 X0) \Leftrightarrow (v3\_waybel\_6 (k4\_lattice3 X0 X1) (k3\_lattice3 X0))))))$$