

## t5\_sheffer1

(TMR4ABbFYp8iH6yMsn1YutUdyyyiqKA1CYbb)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v4\_lattices : \iota \Rightarrow o$  be given. Let  $v6\_lattices : \iota \Rightarrow o$  be given. Let  $v11\_lattices : \iota \Rightarrow o$  be given. Let  $v7\_robbins1 : \iota \Rightarrow o$  be given. Let  $v1\_sheffer1 : \iota \Rightarrow o$  be given. Let  $v2\_sheffer1 : \iota \Rightarrow o$  be given. Let  $v3\_sheffer1 : \iota \Rightarrow o$  be given. Let  $v4\_sheffer1 : \iota \Rightarrow o$  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  $k4\_lattices : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_sheffer1 : \iota \Rightarrow \iota$  be given. Let  $k3\_sheffer1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_lattices : \iota \Rightarrow o$  be given. Let  $k2\_lattices : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_lattices : \iota \Rightarrow o$  be given. Let  $k1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v4\_lattices X0) \wedge ((v6\_lattices \\ & X0) \wedge ((v11\_lattices X0) \wedge ((v1\_sheffer1 X0) \wedge ((v3\_sheffer1 X0) \wedge \\ & ((v4\_sheffer1 X0) \wedge (l3\_lattices X0))))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (k4\_lattices X0 X1 (k3\_sheffer1 X0 X1) = k2\_sheffer1 \\ & X0)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v6\_lattices \\ & X0) \wedge (l1\_lattices X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0))) \Rightarrow (k4\_lattices X0 X1 X2 = k2\_lattices \\ & X0 X1 X2) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow ((l1\_lattices X0) \wedge (l2\_lattices X0)) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v6\_lattices \\ & X0) \wedge (l1\_lattices X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k4\_lattices \\ & X0 X1 X2) (u1\_struct\_0 X0)) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(l3\_lattices X0))\wedge(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow(m1\_subset\_1 (k3\_sheffer1 X0 X1) (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l3\_lattices X0))\Rightarrow(m1\_subset\_1 (k2\_sheffer1 X0) (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l3\_lattices X0))\Rightarrow((v2\_sheffer1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow((X1 = k2\_sheffer1 X0)\Leftrightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow((k1\_lattices X0 X1 X2 = X2)\wedge(k1\_lattices X0 X2 X1 = X2)))))) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l3\_lattices X0))\Rightarrow((v11\_lattices X0)\Leftrightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(k2\_lattices X0 X1 (k1\_lattices X0 X2 X3) = k1\_lattices X0 (k2\_lattices X0 X1 X2) (k2\_lattices X0 X1 X3)))))) \quad (8)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v4\_lattices X0)\wedge((v6\_lattices X0)\wedge((v11\_lattices X0)\wedge((v7\_robbins1 X0)\wedge((v1\_sheffer1 X0)\wedge((v2\_sheffer1 X0)\wedge((v3\_sheffer1 X0)\wedge((v4\_sheffer1 X0)\wedge(l3\_lattices X0))))))))))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(k4\_lattices X0 X1 (k2\_sheffer1 X0) = k2\_sheffer1 X0))$$