

## t4\_lattice7

(TMF3T2d9nzH7o6QVQSaHhhpeohHpAFUEffx)

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Let  $v8\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v1\_lattice3 : \iota \Rightarrow o$  be given. Let  $v2\_lattice3 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v6\_orders\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_lattice7 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v8\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 X0))))))) \Rightarrow (\forall X1. ((v6\_orders\_2 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (((X2 \in X1) \wedge (X3 \in X1)) \Rightarrow ((r2\_orders\_2 X0 X2 X3) \Leftrightarrow (\neg r1\_xreal\_0 (k1\_lattice7 X0 X3) (k1\_lattice7 X0 X2))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v3\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((\neg (\exists X3. ((v6\_orders\_2 X3 X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \wedge ((X1 \in X3) \wedge (X2 \in X3))) \wedge ((\neg r1\_orders\_2 X0 X1 X2) \wedge (\neg r1\_orders\_2 X0 X2 X1))) \wedge (\neg ((r1\_orders\_2 X0 X1 X2) \vee (r1\_orders\_2 X0 X2 X1))) \wedge (\forall X3. ((v6\_orders\_2 X3 X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\neg (X1 \in X3) \wedge (X2 \in X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r2\_orders\_2 \\ X0 X1 X2) \Leftrightarrow ((r1\_orders\_2 X0 X1 X2) \wedge (X1 \neq X2)))))) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((v8\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge \\ (l1\_orders\_2 X0))))))) \Rightarrow (\forall X1.((v6\_orders\_2 X1 X0) \wedge (m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X2.(m1\_subset\_1 \\ X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ X0)) \Rightarrow (((X2 \in X1) \wedge (X3 \in X1)) \Rightarrow ((X2 = X3) \Leftrightarrow (k1\_lattice7 X0 X2 = k1\_lattice7 \\ X0 X3)))))) \end{aligned}$$