

## t8\_lattice7

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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  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $r2\_orders\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_lattice7 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $m1\_lattice7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v6\_orders\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_yellow\_0 : \iota \Rightarrow \iota$  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.

$$\forall X0. (v1\_finset\_1 X0) \Rightarrow (\forall X1. (v1\_finset\_1 X1) \Rightarrow ((r1\_tarski X0 X1) \Rightarrow (r1\_xxreal\_0 (k5\_card\_1 X0) (k5\_card\_1 X1)))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (3)$$

Assume the following.

$$\forall X0. ((v8\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 X0))))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\neg (r2\_orders\_2 X0 X1 X2) \wedge (r1\_xxreal\_0 (k1\_lattice7 X0 X2) (k1\_lattice7 X0 X1)))))) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1 : \iota \Rightarrow o. ((\forall X2. (v7\_ordinal1 X2) \Rightarrow \\ & ((X1 X2) \Rightarrow (r1\_xxreal\_0 X2 X0))) \wedge (\exists X2. (v7\_ordinal1 X2) \wedge \\ & (X1 X2))) \Rightarrow (\exists X2. (v7\_ordinal1 X2) \wedge ((X1 X2) \wedge (\forall X3. \\ & (v7\_ordinal1 X3) \Rightarrow ((X1 X3) \Rightarrow (r1\_xxreal\_0 X3 X2)))))) \end{aligned} \quad (5)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (6)$$

Assume the following.

$$\forall X0. ((v8\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (v1\_finset\_1 (u1\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$v6\_membered k4\_ordinal1 \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge \\ & (l1\_orders\_2 X0)))))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0)))) \Rightarrow (\forall X3. (m1\_lattice7 X3 X0 X1 X2) \Rightarrow ( \\ & (\neg v1\_xboole\_0 X3) \wedge ((v6\_orders\_2 X3 X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow (l1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow (m1\_subset\_1 (k3\_yellow\_0 X0) (u1\_struct\_0 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v8\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge \\ & ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 \\ & X0) \wedge (l1\_orders\_2 X0)))))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow \\ & (m1\_subset\_1 (k1\_lattice7 X0 X1) k5\_numbers) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v8\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge \\ & (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 k5\_numbers) \Rightarrow ((X2 = k1\_lattice7 \\ & X0 X1) \Leftrightarrow ((\exists X3. (m1\_lattice7 X3 X0 (k3\_yellow\_0 X0) X1) \wedge (X2 = \\ & k5\_card\_1 X3)) \wedge (\forall X3. (m1\_lattice7 X3 X0 (k3\_yellow\_0 X0) \\ & X1) \Rightarrow (r1\_xxreal\_0 (k5\_card\_1 X3) X2)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Leftrightarrow (\forall X1. \neg X1 \in X0) \quad (14)$$

Assume the following.

$$\forall X0.((v8\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (v1\_finset\_1 X1)) \quad (15)$$

Assume the following.

$$\forall X0.(v6\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v7\_ordinal1 X1)) \quad (16)$$

**Theorem 1**

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