

# t3\_nat\_lat (TMVQFgjorN- hGyffz22BK8QmRMAE9ki2UBsR)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_nat\_lat : \iota$  be given. Let  $r1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_nat\_d : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k5\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $l1\_lattices : \iota \Rightarrow o$  be given. Let  $l2\_lattices : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow ((r1\_nat\_d X0 X1) \Leftrightarrow (k5\_nat\_d X0 X1 = X1))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 (u1\_struct\_0 k3\_nat\_lat)) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k3\_nat\_lat))) \Rightarrow (k1\_lattices k3\_nat\_lat X0 X1 = k5\_nat\_d X0 X1)) \quad (2)$$

Assume the following.

$$v6\_membered (u1\_struct\_0 k3\_nat\_lat) \quad (3)$$

Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow ((l1\_lattices X0) \wedge (l2\_lattices X0)) \quad (4)$$

Assume the following.

$$(\neg v2\_struct\_0 k3\_nat\_lat) \wedge ((v3\_lattices k3\_nat\_lat) \wedge (l3\_lattices k3\_nat\_lat)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_lattices X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_lattices X0 X1 X2) \Leftrightarrow (k1\_lattices X0 X1 X2 = X2)))) \quad (6)$$

Assume the following.

$$\forall X0.(v6\_membered\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow(v7\_ordinal1\ X1)) \quad (7)$$

**Theorem 1**

$$\forall X0.(m1\_subset\_1\ X0\ (u1\_struct\_0\ k3\_nat\_lat))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ k3\_nat\_lat))\Rightarrow((r1\_lattices\ k3\_nat\_lat\ X0\ X1)\Rightarrow(r1\_nat\_d\ X0\ X1)))$$