

# t5\_yellow11 (TMampkE- SiEAnnNLTf6omgVyeQrHEVDfUVnK)

October 27, 2020

Let  $v3\_orders\_2 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k12\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.((v3\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \Rightarrow (k12\_lattice3 X0 X1 (k13\_lattice3 X0 X1 X2) = X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((v3\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \Rightarrow (k13\_lattice3 X0 (k12\_lattice3 X0 X1 X2) X2 = X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ X0) \wedge (l1\_orders\_2 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k13\_lattice3 X0 X1 X2 = k13\_lattice3 \\ X0 X2 X1) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v5\_orders\_2 X0) \wedge ((v2\_lattice3 \\ X0) \wedge (l1\_orders\_2 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k12\_lattice3 X0 X1 X2 = k12\_lattice3 \\ X0 X2 X1) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v3\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ & X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow ((k12\_lattice3 X0 X1 X2 = X2) \Leftrightarrow (k13\_lattice3 X0 X1 X2 = X1)))) \end{aligned}$$