

t15\_robbins3

(TMQ6w3mgA3HuVcbrZeQLHeatKLeWGQENUq6)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $g3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u2\_lattices : \iota \Rightarrow \iota$  be given. Let  $u1\_lattices : \iota \Rightarrow \iota$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $v4\_lattices : \iota \Rightarrow o$  be given. Let  $v8\_lattices : \iota \Rightarrow o$  be given. Let  $v9\_lattices : \iota \Rightarrow o$  be given. Let  $v7\_lattices : \iota \Rightarrow o$  be given. Let  $v5\_lattices : \iota \Rightarrow o$  be given. Let  $v6\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v4\_lattices X0)) \Rightarrow (v4\_lattices \\ & X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v8\_lattices X0)) \Rightarrow (v8\_lattices \\ & X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v9\_lattices X0)) \Rightarrow (v9\_lattices \\ & X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v7\_lattices X0)) \Rightarrow (v7\_lattices \\ & X1))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v5\_lattices X0)) \Rightarrow (v5\_lattices \\ & X1))) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v6\_lattices X0)) \Rightarrow (v6\_lattices \\ & X1))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow ((v10\_lattices \\ & X0) \Leftrightarrow ((v4\_lattices X0) \wedge ((v5\_lattices X0) \wedge ((v8\_lattices X0) \wedge \\ & ((v6\_lattices X0) \wedge ((v7\_lattices X0) \wedge (v9\_lattices X0))))))) \end{aligned} \tag{7}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1)) \Rightarrow (((g3\_lattices (u1\_struct\_0 \\ & X0) (u2\_lattices X0) (u1\_lattices X0) = g3\_lattices (u1\_struct\_0 \\ & X1) (u2\_lattices X1) (u1\_lattices X1)) \wedge (v10\_lattices X0)) \Rightarrow (v10\_lattices \\ & X1))) \end{aligned}$$