

## t26\_robins3

(TMPRrhz1kQkgjVSFc5gXeJ94LWAqzES4Zfj)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $v1\_lattice3 : \iota \Rightarrow o$  be given. Let  $v2\_lattice3 : \iota \Rightarrow o$  be given. Let  $v10\_robins3 : \iota \Rightarrow o$  be given. Let  $l4\_robins3 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k11\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_robins3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v6\_lattices : \iota \Rightarrow o$  be given. Let  $v8\_lattices : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $r1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v9\_lattices : \iota \Rightarrow o$  be given. Let  $k2\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $k12\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l3\_robins3 : \iota \Rightarrow o$  be given. Let  $l1\_lattices : \iota \Rightarrow o$  be given. Let  $l4\_robins1 : \iota \Rightarrow o$  be given. Let  $l2\_qmax\_1 : \iota \Rightarrow o$  be given. Let  $l2\_robins1 : \iota \Rightarrow o$  be given. Let  $l2\_robins3 : \iota \Rightarrow o$  be given. Let  $l1\_robins3 : \iota \Rightarrow o$  be given. Let  $l1\_robins1 : \iota \Rightarrow o$  be given. Let  $v7\_lattices : \iota \Rightarrow o$  be given. Let  $v4\_lattices : \iota \Rightarrow o$  be given. Let  $v5\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v6\_lattices X0) \wedge ((v8\_lattices \\ X0) \wedge (l3\_lattices X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (r1\_lattices \\ X0 (k4\_lattices X0 X1 X2) X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v8\_lattices X0) \wedge ((v9\_lattices \\ X0) \wedge (l3\_lattices X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_lattices \\ X0 X1 X2) \Leftrightarrow (k2\_lattices X0 X1 X2 = X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v5\_orders\_2 X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow ((X3 = k12\_lattice3 X0 X1 X2) \Leftrightarrow ((r1\_orders\_2 \\ & X0 X3 X1) \wedge ((r1\_orders\_2 X0 X3 X2) \wedge (\forall X4.(m1\_subset\_1 X4 ( \\ & u1\_struct\_0 X0)) \Rightarrow (((r1\_orders\_2 X0 X4 X1) \wedge (r1\_orders\_2 X0 X4 X2)) \Rightarrow \\ & (r1\_orders\_2 X0 X4 X3)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_robbins3 X0) \wedge (l3\_robbins3 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_orders\_2 X0 X1 X2) \Leftrightarrow (r1\_lattices \\ & X0 X1 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v6\_lattices \\ & X0) \wedge (l1\_lattices X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k4\_robbins3 X0 X1 X2 = k2\_lattices \\ & X0 X1 X2) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v6\_lattices \\ & X0) \wedge (l1\_lattices X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k4\_lattices X0 X1 X2 = k2\_lattices \\ & X0 X1 X2) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v5\_orders\_2 X0) \wedge ((v2\_lattice3 \\ & X0) \wedge (l1\_orders\_2 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k12\_lattice3 X0 X1 X2 = k11\_lattice3 \\ & X0 X1 X2) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l4\_robbins3 X0) \Rightarrow ((l3\_robbins3 X0) \wedge ((l4\_robbins1 X0) \wedge (l2\_qmax\_1 X0))) \quad (8)$$

Assume the following.

$$\forall X0.(l4\_robbins1 X0) \Rightarrow ((l2\_robbins1 X0) \wedge (l3\_lattices X0)) \quad (9)$$

Assume the following.

$$\forall X0.(l3\_robbins3 X0) \Rightarrow ((l2\_robbins3 X0) \wedge ((l1\_robbins3 X0) \wedge (l3\_lattices X0))) \quad (10)$$

Assume the following.

$$\forall X0.(l2\_robbins3 X0) \Rightarrow ((l1\_lattices X0) \wedge (l1\_orders\_2 X0)) \quad (11)$$

Assume the following.

$$\forall X0.(l2\_qmax\_1 X0) \Rightarrow ((l1\_orders\_2 X0) \wedge (l1\_robbins1 X0)) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge (v6\_lattices \\ X0) \wedge (l1\_lattices X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ m1\_subset\_1 X2 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k4\_robbins3 \\ X0 X1 X2) (u1\_struct\_0 X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((l1\_orders\_2 X0) \wedge ((m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 \\ (k11\_lattice3 X0 X1 X2) (u1\_struct\_0 X0)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.(((\neg v2\_struct\_0 X0) \wedge (l1\_lattices X0)) \Rightarrow ((v7\_lattices \\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ (u1\_struct\_0 X0)) \Rightarrow (k2\_lattices X0 X1 (k2\_lattices X0 X2 X3) = k2\_lattices \\ X0 (k2\_lattices X0 X1 X2) X3)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge ((v6\_lattices \\ X0) \wedge (l1\_lattices X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k4\_robbins3 X0 X1 X2 = k4\_robbins3 \\ X0 X2 X1) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0) \wedge ((v2\_lattice3 \\ X0) \wedge (l1\_orders\_2 X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k12\_lattice3 X0 X1 X2 = k12\_lattice3 \\ X0 X2 X1) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.(l3\_robbins3 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v4\_lattices \\ X0) \wedge (v10\_robbins3 X0))) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v5\_orders\_2 X0))) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0. (l3\_lattices\ X0) \Rightarrow & (((\neg v2\_struct\_0\ X0) \wedge (v10\_lattices \\ X0)) \Rightarrow & ((\neg v2\_struct\_0\ X0) \wedge ((v4\_lattices\ X0) \wedge ((v5\_lattices\ X0) \wedge \\ ((v6\_lattices\ X0) \wedge & ((v7\_lattices\ X0) \wedge ((v8\_lattices\ X0) \wedge (v9\_lattices \\ X0))))))) & \end{aligned} \quad (19)$$

**Theorem 1**

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0\ X0) \wedge & ((v10\_lattices\ X0) \wedge ((v1\_lattice3 \\ X0) \wedge ((v2\_lattice3\ X0) \wedge & ((v10\_robbins3\ X0) \wedge (l4\_robbins3\ X0)))))) \Rightarrow \\ (\forall X1. (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow & (\forall X2. (m1\_subset\_1 \\ X2\ (u1\_struct\_0\ X0)) \Rightarrow & (k11\_lattice3\ X0\ X1\ X2 = k4\_robbins3\ X0\ X1\ X2))) \end{aligned}$$