

## t41\_filter\_1

(TMGxSU2s5XMu5UjAtB7qQ4K8jX8bokc7bXw)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $v15\_lattices : \iota \Rightarrow o$  be given. Let  $k7\_filter\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v14\_lattices : \iota \Rightarrow o$  be given. Let  $v13\_lattices : \iota \Rightarrow o$  be given. Let  $v3\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v10\_lattices X1) \wedge (l3\_lattices \\ X1))) \Rightarrow (((v14\_lattices X0) \wedge (v14\_lattices X1)) \Leftrightarrow (v14\_lattices \\ (k7\_filter\_1 X0 X1)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v10\_lattices X1) \wedge (l3\_lattices \\ X1))) \Rightarrow (((v13\_lattices X0) \wedge (v13\_lattices X1)) \Leftrightarrow (v13\_lattices \\ (k7\_filter\_1 X0 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \wedge \\ ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1))) \Rightarrow ((\neg v2\_struct\_0 (k7\_filter\_1 \\ X0 X1)) \wedge (v3\_lattices (k7\_filter\_1 X0 X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l3\_lattices X0)) \wedge \\ ((\neg v2\_struct\_0 X1) \wedge (l3\_lattices X1))) \Rightarrow ((v3\_lattices (k7\_filter\_1 \\ X0 X1)) \wedge (l3\_lattices (k7\_filter\_1 X0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. (l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v15\_lattices \\ X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge ((v13\_lattices X0) \wedge (v14\_lattices X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0. (l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v13\_lattices \\ X0) \wedge (v14\_lattices X0))) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v15\_lattices X0))) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v10\_lattices X1) \wedge (l3\_lattices \\ X1))) \Rightarrow (((v15\_lattices X0) \wedge (v15\_lattices X1)) \Leftrightarrow (v15\_lattices \\ (k7\_filter\_1 X0 X1)))) \end{aligned}$$