

## t45\_filter\_2

(TMSoq1EdgxRynvMgS5tCsPLus5EPCFAbYHi)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_filter\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_lattices : \iota \Rightarrow o$  be given. Let  $l2\_lattices : \iota \Rightarrow o$  be given. Let  $v4\_lattices : \iota \Rightarrow o$  be given. Let  $v5\_lattices : \iota \Rightarrow o$  be given. Let  $v6\_lattices : \iota \Rightarrow o$  be given. Let  $v7\_lattices : \iota \Rightarrow o$  be given. Let  $v8\_lattices : \iota \Rightarrow o$  be given. Let  $v9\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow ((l1\_lattices X0) \wedge (l2\_lattices X0)) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ X0))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0)))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge (m1\_subset\_1 \\ X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (k8\_filter\_2 X0 X1 X2 = ReplSep2 \\ (toset (\lambda X3 : \iota.m1\_subset\_1 X3 (u1\_struct\_0 X0))) (\lambda X3 : \\ \iota.toset (\lambda X4 : \iota.m1\_subset\_1 X4 (u1\_struct\_0 X0))) (\lambda X3 : \\ \iota.\lambda X4 : \iota.(X3 \in X1) \wedge (X4 \in X2)) (\lambda X3 : \iota.\lambda X4 : \iota.k3\_lattices \\ X0 X3 X4)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge ((v4\_lattices \\ X0) \wedge (l2\_lattices X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\ m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k3\_lattices X0 X1 X2 = k3\_lattices \\ X0 X2 X1) \quad (3)$$

Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v10\_lattices \\ X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge ((v4\_lattices X0) \wedge ((v5\_lattices X0) \wedge \\ ((v6\_lattices X0) \wedge ((v7\_lattices X0) \wedge ((v8\_lattices X0) \wedge (v9\_lattices \\ X0)))))))) \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (v10\_lattices X0) \wedge (l3\_lattices \\ & X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.((\neg v1\_xboole\_0 \\ & X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X4. \\ & ((\neg v1\_xboole\_0 X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \Rightarrow (((X1 \in X3) \wedge (X2 \in X4)) \Rightarrow ((k3\_lattices X0 X1 X2 \in k8\_filter\_2 \\ & X0 X3 X4) \wedge (k3\_lattices X0 X2 X1 \in k8\_filter\_2 X0 X3 X4)))))) \end{aligned}$$