

## t72\_filter\_0

(TMPgDk2EL3D4LFi7jg53LAZCzXpEb2gu8LS)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $v17\_lattices : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v19\_lattices : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v20\_lattices : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_filter\_0 : \iota \Rightarrow o$  be given. Let  $r1\_filter\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_filter\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v3\_filter\_0 \\ & X0) \wedge (l3\_lattices X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. ((\neg v1\_xboole\_0 \\ & X4) \wedge ((v19\_lattices X4 X0) \wedge ((v20\_lattices X4 X0) \wedge (m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \Rightarrow (((k7\_filter\_0 X0 X1 X2 \in \\ & X4) \wedge (k7\_filter\_0 X0 X2 X3 \in X4)) \Rightarrow (k7\_filter\_0 X0 X1 X3 \in X4)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge ((v19\_lattices X1 X0) \wedge \\ & ((v20\_lattices X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_filter\_0 X0 X1 X2 X3) \Leftrightarrow ( \\ & k7\_filter\_0 X0 X2 X3 \in X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices \\ & X0) \wedge (v17\_lattices X0))) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices \\ & X0) \wedge ((v17\_lattices X0) \wedge (v3\_filter\_0 X0)))))) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v17\_lattices \\ & X0) \wedge (l3\_lattices X0)))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0 X1) \wedge ((v19\_lattices \\ & X1 X0) \wedge ((v20\_lattices X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v10\_lattices X2) \wedge \\ & ((v3\_filter\_0 X2) \wedge (l3\_lattices X2)))) \Rightarrow (\forall X3.(m1\_subset\_1 \\ & X3 (u1\_struct\_0 X2)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\ & X2)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X2)) \Rightarrow (\forall X6. \\ & ((\neg v1\_xboole\_0 X6) \wedge ((v19\_lattices X6 X2) \wedge ((v20\_lattices X6 X2) \wedge \\ & (m1\_subset\_1 X6 (k1\_zfmisc\_1 (u1\_struct\_0 X2)))))) \Rightarrow (\forall X7. \\ & (m1\_subset\_1 X7 (u1\_struct\_0 X0)) \Rightarrow (\forall X8.(m1\_subset\_1 X8 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X9.(m1\_subset\_1 X9 (u1\_struct\_0 X0)) \Rightarrow \\ & (((r1\_filter\_0 X2 X6 X3 X4) \wedge (r1\_filter\_0 X2 X6 X4 X5)) \Rightarrow (r1\_filter\_0 \\ & X2 X6 X3 X5)) \wedge (((r1\_filter\_0 X0 X1 X7 X8) \wedge (r1\_filter\_0 X0 X1 X8 X9)) \Rightarrow \\ & (r1\_filter\_0 X0 X1 X7 X9)))))))))) \end{aligned}$$