

# t31\_filter\_2 (TMWCi- HoEzm9GZQTBZK9X2DAJ4V5z73XGfa9)

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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  $v14\_lattices : \iota \Rightarrow o$  be given. Let  $r1\_filter\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_filter\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_filter\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_lattices : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $r3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $v18\_lattices : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v21\_lattices : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow ((\forall X2. (m1\_subset\_1 X2 X0) \Rightarrow (X2 \in X1)) \Rightarrow (X0 = X1)) \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((X1 \in k6\_filter\_2 X0 X2) \Leftrightarrow (r3\_lattices X0 X1 X2)))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v14\_lattices X0) \wedge (l3\_lattices X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (r3\_lattices X0 X1 (k6\_lattices X0))) \quad (4)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices X0))) \Rightarrow ((\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \wedge ((v19\_lattices (u1\_struct\_0 X0) X0) \wedge ((v20\_lattices (u1\_struct\_0 X0) X0) \wedge (m1\_subset\_1 (u1\_struct\_0 X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0 X1) \wedge ((v19\_lattices X1 X0) \wedge \\ & ((v20\_lattices X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))))) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge ((v14\_lattices \\ & X0) \wedge (l3\_lattices X0)))) \Rightarrow (k6\_lattices X0 \in X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge ((m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)))) \Rightarrow ((r1\_filter\_2 \\ & X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge \\ & (l3\_lattices X0))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow ((\neg v1\_xboole\_0 \\ & (k6\_filter\_2 X0 X1)) \wedge ((v18\_lattices (k6\_filter\_2 X0 X1) X0) \wedge \\ & (v21\_lattices (k6\_filter\_2 X0 X1) X0) \wedge (m1\_subset\_1 (k6\_filter\_2 \\ & X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow ((\neg v1\_xboole\_0 (k5\_filter\_2 X0)) \wedge ((v18\_lattices (k5\_filter\_2 \\ & X0) X0) \wedge ((v21\_lattices (k5\_filter\_2 X0) X0) \wedge (m1\_subset\_1 (k5\_filter\_2 \\ & X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow (k5\_filter\_2 X0 = u1\_struct\_0 X0) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ & X0))) \Rightarrow ((v14\_lattices X0) \Rightarrow (r1\_filter\_2 (u1\_struct\_0 X0) (k5\_filter\_2 \\ & X0) (k6\_filter\_2 X0 (k6\_lattices X0)))) \end{aligned}$$