t64_filter_2 (TMSKTteDGe-qBtd5ypEUagg38DwhwH9eYMT5)

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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 $r1\_filter\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9\_filter\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4\_lattices : \iota \Rightarrow o$ be given. Let $l2\_lattices : \iota \Rightarrow o$ be given. Let $r1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $r3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $v6\_lattices : \iota \Rightarrow o$ be given. Let $v8\_lattices : \iota \Rightarrow o$ be given. Let $v9\_lattices : \iota \Rightarrow o$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_lattices : \iota \Rightarrow o$ be given. Let $v20\_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v21\_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5\_lattices : \iota \Rightarrow o$ be given. Let $v7\_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v4\_lattices\ X0) \wedge (l2\_lattices\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (((r1\_lattices\ X0\ X1\ X2) \wedge (r1\_lattices\ X0\ X2\ X1)) \Rightarrow (X1 = X2)))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\neg(X0 \in X1) \wedge (v1\_xboole\_0\ X1) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v10\_lattices\ X0) \wedge (l3\_lattices\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow ((r3\_lattices\ X0\ X1\ X2) \Rightarrow ((X3 \in k9\_filter\_2\ X0\ X1\ X2) \Leftrightarrow ((r3\_lattices\ X0\ X1\ X3) \wedge (r3\_lattices\ X0\ X3\ X2))))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X2))) \Rightarrow (m1\_subset\_1\ X0\ X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1)\Rightarrow((v1\_xboole\_0\ X1)\vee(X0\in X1)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(X0\in X1)\Rightarrow(m1\_subset\_1\ X0\ X1) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v6\_lattices\ X0)\wedge((v8\_lattices\ X0)\wedge((v9\_lattices\ X0)\wedge(l3\_lattices\ X0)))))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(r3\_lattices\ X0\ X1\ X1) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v6\_lattices\ X0)\wedge((v8\_lattices\ X0)\wedge((v9\_lattices\ X0)\wedge(l3\_lattices\ X0)))))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow((r3\_lattices\ X0\ X1\ X2)\Leftrightarrow(r1\_lattices\ X0\ X1\ X2)) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X0)\wedge((m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0))))\Rightarrow((r1\_filter\_2\ X0\ X1\ X2)\Leftrightarrow(X1=X2)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge(m1\_subset\_1\ X1\ X0))\Rightarrow(k6\_domain\_1\ X0\ X1=k1\_tarski\ X1) \tag{10}$$

Assume the following.

$$\forall X0.\exists X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\wedge(v1\_xboole\_0\ X1) \tag{11}$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0\ (k1\_tarski\ X0) \tag{12}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{13}$$

Assume the following.

$$\forall X0.(l3\_lattices\ X0)\Rightarrow((l1\_lattices\ X0)\wedge(l2\_lattices\ X0)) \tag{14}$$

Assume the following.

$$\forall X0.(l1\_lattices\ X0) \Rightarrow (l1\_struct\_0\ X0) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((v10\_lattices\ X0) \wedge (l3\_lattices\ X0))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow ((\neg v1\_xboole\_0\ (k9\_filter\_2\ X0\ X1\ X2)) \wedge ((v20\_lattices\ (k9\_filter\_2\ X0\ X1\ X2)\ X0) \wedge ((v21\_lattices\ (k9\_filter\_2\ X0\ X1\ X2)\ X0) \wedge (m1\_subset\_1\ (k9\_filter\_2\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))))) \tag{16}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge (m1\_subset\_1\ X1\ X0)) \Rightarrow (m1\_subset\_1\ (k6\_domain\_1\ X0\ X1)\ (k1\_zfmisc\_1\ X0)) \tag{17}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0)) \Rightarrow ((r1\_filter\_2\ X0\ X1\ X2) \Leftrightarrow (\forall X3.(m1\_subset\_1\ X3\ X0) \Rightarrow ((X3 \in X1) \Leftrightarrow (X3 \in X2))))))) \tag{18}$$

Assume the following.

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

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v10\_lattices\ X0) \wedge (l3\_lattices\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (r1\_filter\_2\ (u1\_struct\_0\ X0)\ (k9\_filter\_2\ X0\ X1\ X1)\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X1)))$$