

t49_filter_0

(TMS41eFeD7A91C3CUC3UDDfVBiE8WTzYqww)

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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 $v1_xboole_0 : \iota \Rightarrow o$ 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 $k6_filter_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $k1_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge ((v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 \\ & (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. \\ & (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\ & (X2 = X5)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & (l3_lattices X0))) \wedge ((\neg v1_xboole_0 X1) \wedge ((v19_lattices X1 X0) \wedge \\ & ((v20_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))))))) \Rightarrow ((\neg v2_struct_0 (k6_filter_0 X0 X1)) \wedge ((v3_lattices \\ & (k6_filter_0 X0 X1)) \wedge (v10_lattices (k6_filter_0 X0 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. (l2_lattices X0) \Rightarrow ((v1_funct_1 (u2_lattices X0)) \wedge \\ & ((v1_funct_2 (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u2_lattices \\ & X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_lattices\ X0) \Rightarrow & ((v1_funct_1\ (u1_lattices\ X0)) \wedge \\ & ((v1_funct_2\ (u1_lattices\ X0)\ (k2_zfmisc_1\ (u1_struct_0\ X0)\ (\\ & u1_struct_0\ X0))\ (u1_struct_0\ X0)) \wedge (m1_subset_1\ (u1_lattices \\ & X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0\ X0)\ (\\ & u1_struct_0\ X0))\ (u1_struct_0\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l3_lattices\ X0) \Rightarrow ((l1_lattices\ X0) \wedge (l2_lattices\ X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v2_struct_0\ X0) \wedge & ((v10_lattices\ X0) \wedge \\ & (l3_lattices\ X0))) \wedge ((\neg v1_xboole_0\ X1) \wedge & ((v19_lattices\ X1\ X0) \wedge \\ & ((v20_lattices\ X1\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0 \\ & X0)))))) \Rightarrow ((\neg v2_struct_0\ (k6_filter_0\ X0\ X1)) \wedge & ((v10_lattices \\ & (k6_filter_0\ X0\ X1)) \wedge (l3_lattices\ (k6_filter_0\ X0\ X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge & ((v10_lattices\ X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1.((\neg v1_xboole_0\ X1) \wedge & ((v19_lattices\ X1\ X0) \wedge \\ & ((v20_lattices\ X1\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2.((\neg v2_struct_0\ X2) \wedge & ((v10_lattices\ X2) \wedge \\ & (l3_lattices\ X2))) \Rightarrow ((X2 = k6_filter_0\ X0\ X1) \Leftrightarrow & (\exists X3.((v1_funct_1 \\ & X3) \wedge ((v1_funct_2\ X3\ (k2_zfmisc_1\ X1\ X1)\ X1) \wedge (m1_subset_1\ X3\ (k1_zfmisc_1 \\ & (k2_zfmisc_1\ (k2_zfmisc_1\ X1\ X1)\ X1)))))) \wedge (\exists X4.((v1_funct_1 \\ & X4) \wedge ((v1_funct_2\ X4\ (k2_zfmisc_1\ X1\ X1)\ X1) \wedge (m1_subset_1\ X4\ (k1_zfmisc_1 \\ & (k2_zfmisc_1\ (k2_zfmisc_1\ X1\ X1)\ X1)))))) \wedge ((X3 = k1_realset1\ (u2_lattices \\ & X0)\ X1) \wedge ((X4 = k1_realset1\ (u1_lattices\ X0)\ X1) \wedge (X2 = g3_lattices \\ & X1\ X3\ X4)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l3_lattices\ X0) \Rightarrow ((v3_lattices\ X0) \Rightarrow (X0 = g3_lattices\ (u1_struct_0\ X0)\ (u2_lattices\ X0)\ (u1_lattices\ X0))) \quad (8)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge & ((v10_lattices\ X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1.((\neg v1_xboole_0\ X1) \wedge & ((v19_lattices\ X1\ X0) \wedge \\ & ((v20_lattices\ X1\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0 \\ & X0)))))) \Rightarrow ((u1_struct_0\ (k6_filter_0\ X0\ X1) = X1) \wedge & ((u2_lattices \\ & (k6_filter_0\ X0\ X1) = k1_realset1\ (u2_lattices\ X0)\ X1) \wedge (u1_lattices \\ & (k6_filter_0\ X0\ X1) = k1_realset1\ (u1_lattices\ X0)\ X1)))) \end{aligned}$$