

t20_filter_0 (TM-
RQVh72vYpKaf4BveVZYjSrVS3YXaC2nQE)

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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 $v13_lattices : \iota \Rightarrow o$ be given. Let $k5_lattices : \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_filter_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_lattices : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_filter_0 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v7_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\neg(\neg \forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k4_lattices X0 X1 X2 = X1)) \wedge (k2_filter_0 X0 X1 = u1_struct_0 X0))) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow ((v13_lattices X0) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (\\ & v19_lattices X1 X0) \wedge ((v20_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0)))))) \Rightarrow (\neg(X1 \neq u1_struct_0 X0) \wedge (\forall X2.((\\ & \neg v1_xboole_0 X2) \wedge ((v19_lattices X2 X0) \wedge ((v20_lattices X2 X0) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (\neg(r1_tarSKI \\ & X1 X2) \wedge (v1_filter_0 X2 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v6_lattices \\ & X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices X0) \wedge (l3_lattices X0)))))) \wedge \\ & ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0))) \Rightarrow (r3_lattices X0 X1 X1) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & ((v13_lattices X0) \wedge (l3_lattices X0)))) \wedge (m1_subset_1 X1 (u1_struct_0 \\ & X0))) \Rightarrow (k4_lattices X0 (k5_lattices X0) X1 = k5_lattices X0) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0. (l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (8)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_lattices X0)) \Rightarrow (m1_subset_1 (k5_lattices X0) (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & (l3_lattices X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow ((\neg v1_xboole_0 \\ & (k2_filter_0 X0 X1)) \wedge ((v19_lattices (k2_filter_0 X0 X1) X0) \wedge (\\ & (v20_lattices (k2_filter_0 X0 X1) X0) \wedge (m1_subset_1 (k2_filter_0 \\ & X0 X1) (k1_zfmisc_1 (u1_struct_0 X0)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k2_filter_0 \\ & X0 X1 = \text{ReplSep} (\text{toset} (\lambda X2 : \iota. m1_subset_1 X2 (u1_struct_0 \\ & X0))) (\lambda X2 : \iota. r3_lattices X0 X1 X2) (\lambda X2 : \iota. X2))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v6_lattices \\ & X0) \wedge (l1_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ & m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (k4_lattices X0 X1 X2 = k4_lattices \\ & X0 X2 X1) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0. (l3_lattices\ X0) \Rightarrow & (((\neg v2_struct_0\ X0) \wedge (v10_lattices \\ X0)) \Rightarrow & ((\neg v2_struct_0\ X0) \wedge ((v4_lattices\ X0) \wedge ((v5_lattices\ X0) \wedge \\ ((v6_lattices\ X0) \wedge & ((v7_lattices\ X0) \wedge ((v8_lattices\ X0) \wedge (v9_lattices \\ X0))))))) & \end{aligned} \quad (13)$$

Theorem 1

$$\begin{aligned} \forall X0. ((\neg v2_struct_0\ X0) \wedge & ((v10_lattices\ X0) \wedge (l3_lattices \\ X0))) \Rightarrow & (\forall X1. (m1_subset_1\ X1\ (u1_struct_0\ X0)) \Rightarrow (\neg((\neg v2_struct_0 \\ X0) \wedge & ((v10_lattices\ X0) \wedge ((v13_lattices\ X0) \wedge (l3_lattices\ X0)))) \wedge \\ ((X1 \neq k5_lattices\ X0) \wedge & (\forall X2. ((\neg v1_xboole_0\ X2) \wedge ((v19_lattices \\ X2\ X0) \wedge & ((v20_lattices\ X2\ X0) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0 \\ X0)))))) \Rightarrow & (\neg(X1 \in X2) \wedge (v1_filter_0\ X2\ X0)))))) \end{aligned}$$