

t36_lattice4
(TML69foAnntnq8mxVBMcnjp9mLRGsfFYDNA)

October 27, 2020

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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_lattice4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_filter_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Leftrightarrow (\forall X1. \neg X1 \in X0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 \\ & X1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (k4_lattice4 X0 X1 = ReplSep2 \\ & (toset (\lambda X2 : \iota. m1_subset_1 X2 (u1_struct_0 X0))) (\lambda X2 : \\ & \iota. toset (\lambda X3 : \iota. m1_subset_1 X3 (u1_struct_0 X0))) (\lambda X2 : \\ & \iota. \lambda X3 : \iota. (X2 \in X1) \wedge (X3 \in X1)) (\lambda X2 : \iota. \lambda X3 : \iota. k4_filter_0 \\ & X0 X2 X3))) \end{aligned} \quad (2)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((v10_lattices X1) \wedge \\ & ((v17_lattices X1) \wedge (l3_lattices X1)))) \Rightarrow (\forall X2. ((\neg v1_xboole_0 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X1)))) \Rightarrow ((X0 \in k4_lattice4 \\ & X1 X2) \Leftrightarrow (\exists X3. (m1_subset_1 X3 (u1_struct_0 X1)) \wedge (\exists X4. \\ & (m1_subset_1 X4 (u1_struct_0 X1)) \wedge ((X0 = k4_filter_0 X1 X3 X4) \wedge \\ & ((X3 \in X2) \wedge (X4 \in X2))))) \end{aligned}$$