

l35_substlat

(TMLM3JEmwp78ZVtgr5pkBqUgSW6vqAT8n5u)

October 27, 2020

Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_substlat : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $k1_substlat : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $k4_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_substlat : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_substlat : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $k4_substlat : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v2_struct_0 (k5_substlat X0 X1))\wedge(v3_lattices (k5_substlat X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\neg v1_xboole_0 (k1_substlat X0 X1) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_lattices X0)\Rightarrow&((v1_funct_1 (u2_lattices X0))\wedge \\ &((v1_funct_2 (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u2_lattices \\ &X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (7) \end{aligned}$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.(v3_lattices (k5_substlat X0 X1))\wedge(l3_lattices (k5_substlat X0 X1)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.m1_subset_1 (k1_substlat X0 X1) (k1_zfmisc_1 (k5_finsub_1 (k4_partfun1 X0 X1))) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v3_lattices X2)\wedge(l3_lattices \\ X2))\Rightarrow&((X2 = k5_substlat X0 X1)\Leftrightarrow((u1_struct_0 X2 = k1_substlat X0 \\ &X1)\wedge(\forall X3.(m2_subset_1 X3 (k5_finsub_1 (k4_partfun1 X0 \\ &X1)) (k1_substlat X0 X1))\Rightarrow(\forall X4.(m2_subset_1 X4 (k5_finsub_1 \\ &(k4_partfun1 X0 X1)) (k1_substlat X0 X1))\Rightarrow((k1_binop_1 (u2_lattices \\ &X2) X3 X4 = k3_substlat X0 X1 (k2_substlat X0 X1 X3 X4))\wedge(k1_binop_1 \\ &(u1_lattices X2) X3 X4 = k3_substlat X0 X1 (k4_substlat X0 X1 X3 X4)))))) \quad (11) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l2_lattices X0))\Rightarrow&(\forall X1. \\ &(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 \\ &(u1_struct_0 X0))\Rightarrow(k1_lattices X0 X1 X2 = k5_binop_1 (u1_struct_0 \\ &X0) (u2_lattices X0) X1 X2))) \quad (12) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((m1_subset_1 X2 \\ (k1_substlat X0 X1))\wedge(m1_subset_1 X3 (k1_substlat X0 X1)))\Rightarrow&(k2_substlat \\ &X0 X1 X2 X3 = k2_substlat X0 X1 X3 X2) \quad (13) \end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (u1_struct_0 \\ & (k5_substlat X0 X1))) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ & (k5_substlat X0 X1))) \Rightarrow (k1_lattices (k5_substlat X0 X1) X2 X3 = k1_lattices \\ & (k5_substlat X0 X1) X3 X2)) \end{aligned}$$