

l35_real_lat
(TMJv7hrLJ9gkgUwvfrfvDeuquX1DUom6hnC)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k4_real_lat : \iota \Rightarrow \iota$ be given. Let $k5_real_lat : \iota \Rightarrow \iota$ be given. Let $k2_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m2_funct_2 X1 X0 k1_numbers \\ & (k9_funct_2 X0 k1_numbers)) \Rightarrow (\forall X2.(m2_funct_2 X2 X0 k1_numbers \\ & (k9_funct_2 X0 k1_numbers)) \Rightarrow (\forall X3.(m2_funct_2 X3 X0 k1_numbers \\ & (k9_funct_2 X0 k1_numbers)) \Rightarrow (r2_funct_2 X0 k1_numbers (k1_funcsdom \\ & X0 k1_numbers (k5_real_lat X0) (k1_funcsdom X0 k1_numbers (k5_real_lat \\ & X0) X1 X2) X3) (k1_funcsdom X0 k1_numbers (k5_real_lat X0) X1 (k1_funcsdom \\ & X0 k1_numbers (k5_real_lat X0) X2 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1) \wedge (m1_funct_2 \\ & X2 X0 X1)) \Rightarrow (\forall X3.(m2_funct_2 X3 X0 X1 X2) \Leftrightarrow (m1_subset_1 X3 \\ & X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1)\wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))))\wedge((m1_subset_1 X2 X0)\wedge \\ & (m1_subset_1 X3 X0)))\Rightarrow(k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\ & X1)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 (k9_funct_2 \\ & X0 X1) (k9_funct_2 X0 X1)) (k9_funct_2 X0 X1))\wedge(m1_subset_1 X2 (\\ & k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 \\ & X0 X1)) (k9_funct_2 X0 X1))))))\wedge((m1_subset_1 X3 (k9_funct_2 X0 \\ & X1))\wedge(m1_subset_1 X4 (k9_funct_2 X0 X1))))))\Rightarrow(k1_funct_dom X0 X1 \\ & X2 X3 X4 = k1_binop_1 X2 X3 X4) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 \\ & (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0))))))\Rightarrow(\forall X3.\forall X4.\forall X5. \\ & (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5)\Rightarrow((X0 = X3)\wedge((X1 = X4)\wedge \\ & (X2 = X5)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))))\wedge((v1_funct_1 X2)\wedge((\\ & v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))))\Rightarrow((\neg v2_struct_0 (g3_lattices \\ & X0 X1 X2))\wedge(v3_lattices (g3_lattices X0 X1 X2))) \end{aligned} \quad (7)$$

Assume the following.

$$\neg v1_xboole_0 k1_numbers \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1)\wedge(m1_funct_2 \\ & X2 X0 X1))\Rightarrow(\forall X3.(m2_funct_2 X3 X0 X1 X2)\Rightarrow((v1_funct_1 X3)\wedge \\ & ((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_funct_2 X2 X0 X1)\Rightarrow(\neg v1_xboole_0 X2) \quad (10)$$

Assume the following.

$$\forall X0.(l3_lattices\ X0)\Rightarrow((l1_lattices\ X0)\wedge(l2_lattices\ X0)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0\ X1)\Rightarrow(m1_funct_2\ (k9_funct_2\ X0\ X1)\ X0\ X1) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0\ X0)\Rightarrow & ((v1_funct_1\ (k5_real_lat\ X0))\wedge \\ & ((v1_funct_2\ (k5_real_lat\ X0)\ (k2_zfmisc_1\ (k9_funct_2\ X0\ k1_numbers) \\ & (k9_funct_2\ X0\ k1_numbers))\ (k9_funct_2\ X0\ k1_numbers))\wedge(m1_subset_1 \\ & (k5_real_lat\ X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ (k9_funct_2 \\ & X0\ k1_numbers)\ (k9_funct_2\ X0\ k1_numbers))\ (k9_funct_2\ X0\ k1_numbers)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0\ X0)\Rightarrow & ((v1_funct_1\ (k4_real_lat\ X0))\wedge \\ & ((v1_funct_2\ (k4_real_lat\ X0)\ (k2_zfmisc_1\ (k9_funct_2\ X0\ k1_numbers) \\ & (k9_funct_2\ X0\ k1_numbers))\ (k9_funct_2\ X0\ k1_numbers))\wedge(m1_subset_1 \\ & (k4_real_lat\ X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ (k9_funct_2 \\ & X0\ k1_numbers)\ (k9_funct_2\ X0\ k1_numbers))\ (k9_funct_2\ X0\ k1_numbers)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2. & (((\neg v2_struct_0\ X0)\wedge(l1_lattices \\ & X0))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge(m1_subset_1\ X2\ (u1_struct_0 \\ & X0))))\Rightarrow(m1_subset_1\ (k2_lattices\ X0\ X1\ X2)\ (u1_struct_0\ X0)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2. & (((v1_funct_1\ X1)\wedge((v1_funct_2 \\ & X1\ (k2_zfmisc_1\ X0\ X0)\ X0)\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ & (k2_zfmisc_1\ X0\ X0)\ X0))))\wedge((v1_funct_1\ X2)\wedge((v1_funct_2\ X2 \\ & (k2_zfmisc_1\ X0\ X0)\ X0)\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ & (k2_zfmisc_1\ X0\ X0)\ X0))))))\Rightarrow((v3_lattices\ (g3_lattices\ X0\ X1 \\ & X2))\wedge(l3_lattices\ (g3_lattices\ X0\ X1\ X2))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. & ((\neg v2_struct_0\ X0)\wedge(l1_lattices\ X0))\Rightarrow(\forall X1. \\ & (m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2 \\ & (u1_struct_0\ X0))\Rightarrow(k2_lattices\ X0\ X1\ X2 = k5_binop_1\ (u1_struct_0 \\ & X0)\ (u1_lattices\ X0)\ X1\ X2))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0. & (l3_lattices\ X0)\Rightarrow((v3_lattices\ X0)\Rightarrow(X0 = g3_lattices \\ & (u1_struct_0\ X0)\ (u2_lattices\ X0)\ (u1_lattices\ X0))) \end{aligned} \quad (18)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & (g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat \\ & X0)))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 (g3_lattices \\ & (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)))) \Rightarrow \\ & (\forall X3. (m1_subset_1 X3 (u1_struct_0 (g3_lattices (k9_funct_2 \\ & X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)))) \Rightarrow (k2_lattices \\ & (g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat \\ & X0)) X1 (k2_lattices (g3_lattices (k9_funct_2 X0 k1_numbers) (\\ & k4_real_lat X0) (k5_real_lat X0)) X2 X3) = k2_lattices (g3_lattices \\ & (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)) \\ & (k2_lattices (g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat \\ & X0) (k5_real_lat X0)) X1 X2) X3)))) \end{aligned}$$