

l97_interval

(TMbogQpLUrMVFFsKYy7eDf3aUek3coVacCh)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_roughs_1 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k21_interval : \iota \Rightarrow \iota$ be given. Let $k1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ 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 $v3_lattices : \iota \Rightarrow o$ be given. Let $k18_interval : \iota \Rightarrow \iota$ 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 $m2_interval : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k15_interval : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_interval : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_interval : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $k17_interval : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \wedge ((m1_subset_1 X2 X0) \wedge \\ & (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_roughs_1 X0) \wedge (l1_orders_2 X0))) \Rightarrow ((\neg v2_struct_0 (k21_interval X0)) \wedge (v3_lattices (k21_interval X0))) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_roughs_1 X0) \wedge (l1_orders_2 X0))) \Rightarrow (\neg v1_xboole_0 (k18_interval X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_lattices\ X0) \Rightarrow & ((v1_funct_1\ (u2_lattices\ X0)) \wedge \\ & ((v1_funct_2\ (u2_lattices\ X0)\ (k2_zfmisc_1\ (u1_struct_0\ X0)\ (\\ & u1_struct_0\ X0))\ (u1_struct_0\ X0)) \wedge (m1_subset_1\ (u2_lattices \\ & X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0\ X0)\ (\\ & u1_struct_0\ X0))\ (u1_struct_0\ X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l3_lattices\ X0) \Rightarrow ((l1_lattices\ X0) \wedge (l2_lattices\ X0)) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge ((v3_roughs_1\ X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow & ((v3_lattices\ (k21_interval1\ X0)) \wedge (l3_lattices\ (k21_interval1 \\ & X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0\ X0) \wedge ((v3_roughs_1\ X0) \wedge \\ (l1_orders_2\ X0))) \wedge (m2_interval1\ X1\ X0)) \Rightarrow & (m1_subset_1\ (k15_interval1 \\ & X0\ X1)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0\ X0) \wedge ((v3_roughs_1\ X0) \wedge \\ (l1_orders_2\ X0))) \wedge (m2_interval1\ X1\ X0)) \Rightarrow & (m1_subset_1\ (k14_interval1 \\ & X0\ X1)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge ((v3_roughs_1\ X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow & (\forall X1.((v3_lattices\ X1) \wedge (l3_lattices\ X1)) \Rightarrow ((X1 = \\ & k21_interval1\ X0) \Leftrightarrow ((u1_struct_0\ X1 = k18_interval1\ X0) \wedge (\forall X2. \\ & (m1_subset_1\ X2\ (k18_interval1\ X0)) \Rightarrow (\forall X3.(m1_subset_1 \\ & X3\ (k18_interval1\ X0)) \Rightarrow (\forall X4.(m2_interval1\ X4\ X0) \Rightarrow (\forall X5. \\ & (m2_interval1\ X5\ X0) \Rightarrow (((X2 = X4) \wedge (X3 = X5)) \Rightarrow ((k1_binop_1\ (u2_lattices \\ & X1)\ X2\ X3 = k16_interval1\ X0\ X4\ X5) \wedge (k1_binop_1\ (u1_lattices\ X1)\ X2 \\ & X3 = k17_interval1\ X0\ X4\ X5)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge ((v3_roughs_1\ X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow & (\forall X1.(X1 = k18_interval1\ X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow \\ & (m2_interval1\ X2\ X0))) \end{aligned} \quad (11)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_roughs_1 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow (\forall X1.(m2_interval X1 X0) \Rightarrow (\forall X2.(m2_interval \\ & X2 X0) \Rightarrow (k16_interval X0 X1 X2 = k4_tarski (k4_subset_1 (u1_struct_0 \\ & X0) (k14_interval X0 X1) (k14_interval X0 X2)) (k4_subset_1 (u1_struct_0 \\ & X0) (k15_interval X0 X1) (k15_interval X0 X2)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 \\ & X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = \\ & k4_subset_1 X0 X2 X1) \end{aligned} \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_roughs_1 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k21_interval \\ & X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k21_interval \\ & X0))) \Rightarrow (k1_lattices (k21_interval X0) X1 X2 = k1_lattices (k21_interval \\ & X0) X2 X1))) \end{aligned}$$