

t7_osalg_2 (TMPn- sNn3GEMhjN8czYTJaL2KQfXTt8KNURc)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v4_osalg_1 : \iota \Rightarrow o$ be given. Let $v5_osalg_1 : \iota \Rightarrow o$ be given. Let $l3_osalg_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_tarski : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_osalg_1 : \iota \Rightarrow o$ be given. Let $l2_osalg_1 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v11_osalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (r1_tarski\ X0\ (k3_tarski\ X1)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ X2))) \Rightarrow (m1_subset_1\ X0\ X2) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1\ X0\ (k1_zfmisc_1\ X1)) \Leftrightarrow (r1_tarski\ X0\ X1) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0) \wedge (v3_orders_2\ X0) \wedge (l1_orders_2\ X0)) \wedge ((m1_subset_1\ X1\ (u1_struct_0\ X0)) \wedge (m1_subset_1\ X2\ (u1_struct_0\ X0)))) \Rightarrow (r3_orders_2\ X0\ X1\ X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.r1_tarski\ X0\ X0 \quad (5)$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0) \Rightarrow ((l1_osalg_1 X0) \wedge (l2_osalg_1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2_osalg_1 X0) \Rightarrow ((l1_msualg_1 X0) \wedge (l1_orders_2 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & ((v4_osalg_1 X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \wedge ((v1_relat_1 \\ & X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 \\ & X1 (u1_struct_0 X0)))))) \Rightarrow ((v1_relat_1 (k2_osalg_2 X0 X1)) \wedge ((\\ & v4_relat_1 (k2_osalg_2 X0 X1) (u1_struct_0 X0)) \wedge ((v1_funct_1 \\ & (k2_osalg_2 X0 X1)) \wedge ((v1_partfun1 (k2_osalg_2 X0 X1) (u1_struct_0 \\ & X0)) \wedge (v11_osalg_1 (k2_osalg_2 X0 X1) X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \Rightarrow (\forall X1.((v1_relat_1 \\ & X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 \\ & X1 (u1_struct_0 X0)))))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v4_relat_1 \\ & X2 (u1_struct_0 X0)) \wedge ((v1_funct_1 X2) \wedge ((v1_partfun1 X2 (u1_struct_0 \\ & X0)) \wedge (v11_osalg_1 X2 X0)))))) \Rightarrow ((X2 = k2_osalg_2 X0 X1) \Leftrightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (k1_funct_1 X2 X3 = k3_tarski \\ & (ReplSep (toset (\lambda X4 : \iota.m1_subset_1 X4 (u1_struct_0 X0))) \\ & (\lambda X4 : \iota.r3_orders_2 X0 X4 X3) (\lambda X4 : \iota.k1_funct_1 X1 X4)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge (\\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \Rightarrow (\forall X2.((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & ((r2_pboole X0 X1 X2) \Leftrightarrow (\forall X3.(X3 \in X0) \Rightarrow (r1_tarski (k1_funct_1 \\ & X1 X3) (k1_funct_1 X2 X3)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0) \Rightarrow ((v4_osalg_1 X0) \Rightarrow ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge (v5_orders_2 X0)))) \quad (11)$$

Theorem 1

$$\begin{aligned} & \forall X0.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \Rightarrow (\forall X1.((v1_relat_1 \\ & X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 \\ & X1 (u1_struct_0 X0)))))) \Rightarrow (r2_pboole (u1_struct_0 X0) X1 (k2_osalg_2 \\ & X0 X1))) \end{aligned}$$