

t30_equation
(TMLqdsR7dm1tUQj6X2F3hCan6VLj67Hc649)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_equation : \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_equation : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\forall X0. \forall X1. \forall X2. (X0 \in k2_zfmisc_1 X1 X2) \Rightarrow ((k1_xtuple_0 X0 \in X1) \wedge (k2_xtuple_0 X0 \in X2)) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 X0))) \Rightarrow ((v1_relat_1 (k4_equation X0)) \wedge ((v2_relat_1 (k4_equation X0)) \wedge ((v4_relat_1 (k4_equation X0) (u1_struct_0 X0)) \wedge ((v1_funct_1 (k4_equation X0)) \wedge (v1_partfun1 (k4_equation X0) (u1_struct_0 X0)))))) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_relat_1 \\ & X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(\\ & v1_partfun1 X1 X0))))))\wedge(m1_subset_1 X2 X0)))\Rightarrow(\neg v1_xboole_0 (\\ & k1_funct_1 X1 X2)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1_struct_0 X0)\wedge(l2_msualg_1 X1 X0))\Rightarrow \\ & ((v1_relat_1 (u3_msualg_1 X0 X1))\wedge((v4_relat_1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0))\wedge((v1_funct_1 (u3_msualg_1 X0 X1))\wedge(v1_partfun1 \\ & (u3_msualg_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(l5_struct_0 X0)\Rightarrow(l1_struct_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(\forall X1. \\ & (l3_msualg_1 X1 X0)\Rightarrow(l2_msualg_1 X1 X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow(l5_struct_0 X0) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\Rightarrow(l3_msualg_1 (k3_equation X0) X0) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\ & X0)))\Rightarrow(k4_equation X0 = k6_pboole (u1_struct_0 X0) (u3_msualg_1 \\ & X0 (k3_equation X0)) (u3_msualg_1 X0 (k3_equation X0))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge(\\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\Rightarrow(\forall X2.((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow \\ & (\forall X3.((v1_relat_1 X3)\wedge((v4_relat_1 X3 X0)\wedge((v1_funct_1 \\ & X3)\wedge(v1_partfun1 X3 X0))))\Rightarrow((X3 = k6_pboole X0 X1 X2)\Leftrightarrow(\forall X4. \\ & (X4 \in X0)\Rightarrow(k1_funct_1 X3 X4 = k2_zfmisc_1 (k1_funct_1 X1 X4) (k1_funct_1 \\ & X2 X4)))))) \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\ & X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2. \\ & (m1_subset_1 X2 (k1_funct_1 (k4_equation X0) X1))\Rightarrow(k2_xtuple_0 \\ & X2 \in k1_funct_1 (u3_msualg_1 X0 (k3_equation X0)) X1))) \end{aligned}$$