

t12_pralg_2
(TMbiQiJmgoS5QU4rYcrv1GDVt7v6UKVpJwq)

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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 $m1_pralg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r8_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_pralg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_pralg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $u4_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_pralg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $k13_finseq_1 : \iota \Rightarrow \iota$ be given. Let $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k6_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Let $g3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_relat_1 \\ & X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))))) \wedge \\ & ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 \\ & X2 X0)))))) \Rightarrow (r8_pboole X0 X1 X1) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. k3_finseq_2 X0 = k13_finseq_1 X0 \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(l1_msualg_1 \\ & X0))\wedge(((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((\\ & v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\wedge(m2_pboole \\ & X2 (u4_struct_0 X0) (k3_relat_1 (u1_msualg_1 X0) (k6_finseq_2 \\ & (u1_struct_0 X0) X1)) (k3_relat_1 (u2_msualg_1 X0) X1))))\Rightarrow(\forall X3. \\ & \forall X4.\forall X5.(g3_msualg_1 X0 X1 X2 = g3_msualg_1 X3 X4 X5)\Rightarrow \\ & ((X0 = X3)\wedge((X1 = X4)\wedge(X2 = X5)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 \\ & X1)\wedge(l1_msualg_1 X1)))\wedge(m1_pralg_2 X2 X0 X1))\Rightarrow(v3_msualg_1 (\\ & k14_pralg_2 X0 X1 X2) X1) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 \\ & (u1_struct_0 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X1)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))))\wedge((v1_relat_1 X3)\wedge((v4_relat_1 X3 X1)\wedge \\ & ((v1_funct_1 X3)\wedge(v1_partfun1 X3 X1))))))\Rightarrow((v1_relat_1 (k3_relat_1 \\ & X2 X3))\wedge((v4_relat_1 (k3_relat_1 X2 X3) X0)\wedge((v1_funct_1 (k3_relat_1 \\ & X2 X3))\wedge(v1_partfun1 (k3_relat_1 X2 X3) X0)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v11_struct_0 X0)\wedge(l5_struct_0 X0))\Rightarrow(\neg v1_xboole_0 \\ & (u4_struct_0 X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\neg v1_xboole_0 (k13_finseq_1 X0) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\wedge \\ & (l3_msualg_1 X1 X0))\Rightarrow(m2_pboole (u4_msualg_1 X0 X1) (u4_struct_0 \\ & X0) (k3_relat_1 (u1_msualg_1 X0) (k6_finseq_2 (u1_struct_0 X0) \\ & (u3_msualg_1 X0 X1))) (k3_relat_1 (u2_msualg_1 X0) (u3_msualg_1 \\ & X0 X1))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1_struct_0 X0)\wedge(l2_msualg_1 X1 X0))\Rightarrow \\ & ((v1_relat_1 (u3_msualg_1 X0 X1))\wedge((v4_relat_1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0))\wedge((v1_funct_1 (u3_msualg_1 X0 X1))\wedge(v1_partfun1 \\ & (u3_msualg_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_msualg_1 X0)\Rightarrow((v1_funct_1 (u2_msualg_1 X0))\wedge \\ & ((v1_funct_2 (u2_msualg_1 X0) (u4_struct_0 X0) (u1_struct_0 X0))\wedge \\ & (m1_subset_1 (u2_msualg_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\ & X0) (u1_struct_0 X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_msualg_1 X0)\Rightarrow((v1_funct_1 (u1_msualg_1 X0))\wedge \\ & ((v1_funct_2 (u1_msualg_1 X0) (u4_struct_0 X0) (k3_finseq_2 (\\ & u1_struct_0 X0)))\wedge(m1_subset_1 (u1_msualg_1 X0) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (u4_struct_0 X0) (k3_finseq_2 (u1_struct_0 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow \\ & (\forall X3.(m2_pboole X3 X0 X1 X2)\Rightarrow((v1_relat_1 X3)\wedge((v4_relat_1 \\ & X3 X0)\wedge((v1_funct_1 X3)\wedge(v1_partfun1 X3 X0)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.(l5_struct_0 X0)\Rightarrow(l1_struct_0 X0) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(\forall X1. (l3_msualg_1 X1 X0)\Rightarrow(l2_msualg_1 X1 X0)) \quad (15)$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow(l5_struct_0 X0) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge(\\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\Rightarrow((v1_relat_1 (k6_finseq_2 \\ & X0 X1))\wedge((v4_relat_1 (k6_finseq_2 X0 X1) (k3_finseq_2 X0))\wedge((\\ & v1_funct_1 (k6_finseq_2 X0 X1))\wedge(v1_partfun1 (k6_finseq_2 X0 \\ & X1) (k3_finseq_2 X0)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.v1_relat_1 (k3_relat_1 X0 X1) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge(l1_msualg_1 X1)))\wedge(m1_pralg_2 X2 X0 X1))\Rightarrow(l3_msualg_1 (k14_pralg_2 X0 X1 X2) X1) \quad (19)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge(l1_msualg_1 X1)))\wedge(m1_pralg_2 X2 X0 X1))\Rightarrow(m2_pboole (k13_pralg_2 \\ &X0 X1 X2) (u4_struct_0 X1) (k3_relat_1 (u1_msualg_1 X1) (k6_finseq_2 \\ &(u1_struct_0 X1) (k10_pralg_2 X0 X1 X2))) (k3_relat_1 (u2_msualg_1 \\ &X1) (k10_pralg_2 X0 X1 X2))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X1)\wedge(l1_msualg_1 X1))\wedge(m1_pralg_2 X2 X0 X1))\Rightarrow((v1_relat_1 (k10_pralg_2 X0 X1 X2))\wedge \\ &((v4_relat_1 (k10_pralg_2 X0 X1 X2) (u1_struct_0 X1))\wedge((v1_funct_1 \\ &(k10_pralg_2 X0 X1 X2))\wedge(v1_partfun1 (k10_pralg_2 X0 X1 X2) (u1_struct_0 \\ &X1)))))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge \\ &(l1_msualg_1 X1)))\Rightarrow(\forall X2.(m1_pralg_2 X2 X0 X1)\Rightarrow(k14_pralg_2 \\ &X0 X1 X2 = g3_msualg_1 X1 (k10_pralg_2 X0 X1 X2) (k13_pralg_2 X0 X1 \\ &X2))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\wedge \\ &(l3_msualg_1 X1 X0))\Rightarrow((v3_msualg_1 X1 X0)\Rightarrow(X1 = g3_msualg_1 X0 \\ &(u3_msualg_1 X0 X1) (u4_msualg_1 X0 X1))) \end{aligned} \quad (23)$$

Theorem 1

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X1)\wedge((\neg v11_struct_0 X1)\wedge \\ &(l1_msualg_1 X1)))\Rightarrow(\forall X2.(m1_pralg_2 X2 X0 X1)\Rightarrow((r8_pboole \\ &(u1_struct_0 X1) (u3_msualg_1 X1 (k14_pralg_2 X0 X1 X2)) (k10_pralg_2 \\ &X0 X1 X2))\wedge(r8_pboole (u4_struct_0 X1) (u4_msualg_1 X1 (k14_pralg_2 \\ &X0 X1 X2)) (k13_pralg_2 X0 X1 X2)))))) \end{aligned}$$