

t6_scmbSORT
(TMcSah7w8T4HQgioErv2dimc6gdRizDTe6s)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_compos_1 : \iota \Rightarrow \iota$ be given. Let $k1_scmfSA_2 : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v5_funct_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_3 : \iota$ be given. Let $m1_scmfSA_2 : \iota \Rightarrow o$ be given. Let $v1_ami_2 : \iota \Rightarrow o$ be given. Let $v1_scmfSA_m : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_scmfSA6b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_compos_1 : \iota \Rightarrow \iota$ be given. Let $k18_scmfSA_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_scmfSA_m : \iota \Rightarrow \iota$ be given. Let $r8_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $l1_compos_1 : \iota \Rightarrow o$ be given. Let $v1_zfmisc_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_afinsq_1 : \iota \Rightarrow o$ be given. Let $v1_int_1 : \iota \Rightarrow o$ be given. Let $k16_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_scmfSA7b : \iota \Rightarrow o$ be given. Let $v2_scm_halt : \iota \Rightarrow o$ be given. Let $l1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_7 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_numbers : \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((v1_relat_1 X0) \wedge ((v4_relat_1 X0 (u1_struct_0 k1_scmfSA_2)) \wedge \\
& ((v1_funct_1 X0) \wedge ((v5_funct_1 X0 (k2_memstr_0 np_3 k1_scmfSA_2)) \wedge \\
& (v1_partfun1 X0 (u1_struct_0 k1_scmfSA_2)))))) \Rightarrow ((\forall X1. \\
& ((v1_ami_2 X1) \wedge ((\neg v1_scmfSA_m X1) \wedge (m1_subset_1 X1 (u1_struct_0 \\
& k1_scmfSA_2)))) \Rightarrow (k1_funct_1 (k1_scmfSA_m X0) X1 = k1_funct_1 \\
& X0 X1)) \wedge (\forall X1. (m1_scmfSA_2 X1) \Rightarrow (k18_scmfSA_2 (k1_scmfSA_m \\
& X0) X1 = k18_scmfSA_2 X0 X1)))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\ X0 (u1_compos_1 k1_scmfsa_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 \\ X0 k5_numbers)))))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 \\ X1 (u1_struct_0 k1_scmfsa_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 \\ X1 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge (v1_partfun1 X1 (u1_struct_0 \\ k1_scmfsa_2)))))) \Rightarrow (r8_pboole (u1_struct_0 k1_scmfsa_2) (k1_scmfsa6b \\ (k4_compos_1 k1_scmfsa_2) X1 X0) (k1_scmfsa_m X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_relat_1 \\ X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge \\ ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 \\ X2 X0)))))) \Rightarrow ((r8_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge ((v4_relat_1 X0 (u1_struct_0 k1_scmfsa_2)) \wedge \\ ((v1_funct_1 X0) \wedge ((v5_funct_1 X0 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge \\ (v1_partfun1 X0 (u1_struct_0 k1_scmfsa_2)))))) \Rightarrow ((v1_relat_1 \\ (k1_scmfsa_m X0)) \wedge ((v4_relat_1 (k1_scmfsa_m X0) (u1_struct_0 \\ k1_scmfsa_2)) \wedge ((v1_funct_1 (k1_scmfsa_m X0)) \wedge ((v5_funct_1 \\ (k1_scmfsa_m X0) (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge (v1_partfun1 \\ (k1_scmfsa_m X0) (u1_struct_0 k1_scmfsa_2)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (\neg v1_xboole_0 X1) \Rightarrow (\neg v1_xboole_0 (k2_funcop_1 X1 X0)) \quad (6)$$

Assume the following.

$$\forall X0. \neg v1_xboole_0 (k1_tarski X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_compos_1 X0) \Rightarrow (((\neg v1_xboole_0 (k4_compos_1 X0)) \wedge \\ ((v1_zfmisc_1 (k4_compos_1 X0)) \wedge ((v1_relat_1 (k4_compos_1 X0)) \wedge \\ ((v4_relat_1 (k4_compos_1 X0) k5_numbers) \wedge ((v5_relat_1 (k4_compos_1 \\ X0) (u1_compos_1 X0)) \wedge ((v1_funct_1 (k4_compos_1 X0)) \wedge ((v1_finset_1 \\ (k4_compos_1 X0)) \wedge (v1_afinsq_1 (k4_compos_1 X0)))))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_ami_2 X0)\wedge(m1_subset_1 X0 (u1_struct_0 \\ k1_scmfsa_2)))\wedge(v1_int_1 X1))\Rightarrow((v1_relat_1 (k16_funcop_1 X0 \\ X1))\wedge((v4_relat_1 (k16_funcop_1 X0 X1) (u1_struct_0 k1_scmfsa_2))\wedge \\ ((v1_funct_1 (k16_funcop_1 X0 X1))\wedge((v5_funct_1 (k16_funcop_1 \\ X0 X1) (k2_memstr_0 np_3 k1_scmfsa_2))\wedge(v4_memstr_0 (k16_funcop_1 \\ X0 X1) np_3 k1_scmfsa_2)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 (k16_funcop_1 X0 X1))\wedge(v1_funct_1 (k16_funcop_1 X0 X1)) \quad (10)$$

Assume the following.

$$\begin{aligned} (v1_relat_1 (k4_compos_1 k1_scmfsa_2))\wedge((v4_relat_1 (k4_compos_1 \\ k1_scmfsa_2) k5_numbers)\wedge((v5_relat_1 (k4_compos_1 k1_scmfsa_2) \\ (u1_compos_1 k1_scmfsa_2))\wedge((v1_funct_1 (k4_compos_1 k1_scmfsa_2))\wedge \\ ((v1_finset_1 (k4_compos_1 k1_scmfsa_2))\wedge((v1_scmfsa7b (k4_compos_1 \\ k1_scmfsa_2))\wedge(v2_scm_halt (k4_compos_1 k1_scmfsa_2))))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(l1_extpro_1 X1 X0)\Rightarrow((l1_memstr_0 X1 X0)\wedge (l1_compos_1 X1)) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0)\wedge((v4_relat_1 X0 (u1_struct_0 k1_scmfsa_2))\wedge \\ ((v1_funct_1 X0)\wedge(v5_funct_1 X0 (k2_memstr_0 np_3 k1_scmfsa_2))))))\Rightarrow \\ ((v1_relat_1 (k1_scmfsa_m X0))\wedge((v4_relat_1 (k1_scmfsa_m X0) \\ (u1_struct_0 k1_scmfsa_2))\wedge((v1_funct_1 (k1_scmfsa_m X0))\wedge \\ (v5_funct_1 (k1_scmfsa_m X0) (k2_memstr_0 np_3 k1_scmfsa_2)))))) \end{aligned} \quad (13)$$

Assume the following.

$$(v1_extpro_1 k1_scmfsa_2 np_3)\wedge(l1_extpro_1 k1_scmfsa_2 np_3) \quad (14)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v1_relat_1 X0)\wedge((v4_relat_1 \\
& X0 k5_numbers)\wedge((v5_relat_1 X0 (u1_compos_1 k1_scmfsa_2))\wedge \\
& (\neg v1_xboole_0 X0)\wedge((v1_funct_1 X0)\wedge((v1_finset_1 X0)\wedge(v1_afinsq_1 \\
& X0))))))\wedge(((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 k1_scmfsa_2))\wedge \\
& ((v1_funct_1 X1)\wedge((v5_funct_1 X1 (k2_memstr_0 np_3 k1_scmfsa_2))\wedge \\
& (v1_partfun1 X1 (u1_struct_0 k1_scmfsa_2))))))\wedge((v1_relat_1 \\
& X2)\wedge((v4_relat_1 X2 k5_numbers)\wedge((v5_relat_1 X2 (u1_compos_1 \\
& k1_scmfsa_2))\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 k5_numbers))))))\Rightarrow \\
& ((v1_relat_1 (k1_scmfsa6b X0 X1 X2))\wedge((v4_relat_1 (k1_scmfsa6b \\
& X0 X1 X2) (u1_struct_0 k1_scmfsa_2))\wedge((v1_funct_1 (k1_scmfsa6b \\
& X0 X1 X2))\wedge((v5_funct_1 (k1_scmfsa6b X0 X1 X2) (k2_memstr_0 np_3 \\
& k1_scmfsa_2))\wedge(v1_partfun1 (k1_scmfsa6b X0 X1 X2) (u1_struct_0 \\
& k1_scmfsa_2))))))
\end{aligned} \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.m1_subset_1 (k1_funct_7 X0 X1) X1 \tag{16}$$

Assume the following.

$$\forall X0.\forall X1.k16_funcop_1 X0 X1 = k7_funcop_1 (k1_tarski X0) X1 \tag{17}$$

Assume the following.

$$\forall X0.\forall X1.k2_funcop_1 X0 X1 = k2_zfmisc_1 X0 (k1_tarski X1) \tag{18}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 \\
& X1 X0))\Rightarrow((v1_xboole_0 X1)\wedge((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))))
\end{aligned} \tag{19}$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_numbers)\Rightarrow(v1_int_1 X0) \tag{20}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(((v1_relat_1 X0)\wedge((v4_relat_1 X0 k5_numbers)\wedge((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmfsa_2))\wedge((v1_funct_1 X0)\wedge(v1_partfun1 \\
& X0 k5_numbers))))))\Rightarrow(\forall X1.(((v1_relat_1 X1)\wedge((v4_relat_1 \\
& X1 (u1_struct_0 k1_scmfsa_2))\wedge((v1_funct_1 X1)\wedge((v5_funct_1 \\
& X1 (k2_memstr_0 np_3 k1_scmfsa_2))\wedge(v1_partfun1 X1 (u1_struct_0 \\
& k1_scmfsa_2))))))\Rightarrow(\forall X2.(m1_scmfsa_2 X2)\Rightarrow(\forall X3. \\
& ((v1_ami_2 X3)\wedge((\neg v1_scmfsa_m X3)\wedge(m1_subset_1 X3 (u1_struct_0 \\
& k1_scmfsa_2))))\Rightarrow((k1_funct_1 (k1_scmfsa6b (k4_compos_1 k1_scmfsa_2) \\
& X1 X0) X3 = k1_funct_1 X1 X3)\wedge(k18_scmfsa_2 (k1_scmfsa6b (k4_compos_1 \\
& k1_scmfsa_2) X1 X0) X2 = k18_scmfsa_2 X1 X2))))))
\end{aligned}$$