

t63_scmfsa8c
(TMFDTXdvffj4wbL3FLXNDyr6fe1Dxo7DUT4)

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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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_afinsq_1 : \iota \Rightarrow o$ be given. Let $v1_scmfsa6b : \iota \Rightarrow o$ be given. Let $r6_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_scmfsa_m : \iota \Rightarrow \iota$ 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 $k4_scmfsa_2 : \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $np_1 : \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_setfam_1 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_compos_1 : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v4_relat_1 X0 (u1_struct_0 k1_scmfsa_2)) \wedge \\ & ((v1_funct_1 X0) \wedge (v5_funct_1 X0 (k2_memstr_0 np_3 k1_scmfsa_2)))))) \Rightarrow \\ & (k1_funct_1 (k1_scmfsa_m X0) (k4_scmfsa_2 k6_numbers) = np_1) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_setfam_1 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\ & ((v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge (l1_memstr_0 X1 X0)))) \Rightarrow \\ & (\forall X2.((v1_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 X1)) \wedge \\ & ((v1_funct_1 X2) \wedge ((v5_funct_1 X2 (k2_memstr_0 X0 X1)) \wedge (v5_memstr_0 \\ & X2 X0 X1 k6_numbers)))))) \Rightarrow (k8_memstr_0 X0 X1 X2 = X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ & v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (r1_tarski X0 (k1_funct_4 X1 \\ & X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (\neg v1_setfam_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge ((v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge \\ & ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 X0)))) \Rightarrow (\forall X2.((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\ & X1)) \wedge (v1_funct_1 X2)))) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge ((v4_relat_1 \\ & X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 \\ & X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 X1)))))) \Rightarrow ((r1_extpro_1 \\ & X0 X1 X2 X3) \Rightarrow (k6_extpro_1 X0 X1 X2 X3 = k5_extpro_1 X0 X1 X2 X3 (k8_extpro_1 \\ & X0 X1 X2 X3)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 np_3) \wedge (m2_subset_1 np_3 k1_numbers k5_numbers)) \wedge \\ & ((m1_subset_1 np_3 k5_numbers) \wedge (m1_subset_1 np_3 k1_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\neg v1_xboole_0 np_3 \quad (6)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge (v1_funct_1 X2)))) \Rightarrow ((v1_relat_1 (k1_funct_4 \\ & X1 X2)) \wedge ((v4_relat_1 (k1_funct_4 X1 X2) X0) \wedge ((v1_funct_1 (k1_funct_4 \\ & X1 X2)) \wedge (v1_partfun1 (k1_funct_4 X1 X2) X0)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge (v1_funct_1 X1)) \wedge ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge \\ & (v1_funct_1 X2)))) \Rightarrow ((v1_relat_1 (k1_funct_4 X1 X2)) \wedge ((v4_relat_1 \\ & (k1_funct_4 X1 X2) X0) \wedge (v1_funct_1 (k1_funct_4 X1 X2)))) \end{aligned} \quad (9)$$

Assume the following.

$$(v3_memstr_0\ k1_scmfsa_2\ np_3) \wedge (v1_extpro_1\ k1_scmfsa_2\ np_3) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. & ((v1_relat_1\ X0) \wedge ((v4_relat_1\ X0\ (u1_struct_0\ k1_scmfsa_2)) \wedge \\ & ((v1_funct_1\ X0) \wedge ((v5_funct_1\ X0\ (k2_memstr_0\ np_3\ k1_scmfsa_2)) \wedge \\ & (v1_partfun1\ X0\ (u1_struct_0\ k1_scmfsa_2)))))) \Rightarrow ((v1_relat_1 \\ & (k1_scmfsa_m\ X0)) \wedge ((v4_relat_1\ (k1_scmfsa_m\ X0)\ (u1_struct_0 \\ & k1_scmfsa_2)) \wedge ((v1_funct_1\ (k1_scmfsa_m\ X0)) \wedge ((v5_funct_1 \\ & (k1_scmfsa_m\ X0)\ (k2_memstr_0\ np_3\ k1_scmfsa_2)) \wedge (v1_partfun1 \\ & (k1_scmfsa_m\ X0)\ (u1_struct_0\ k1_scmfsa_2)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0. & ((v1_relat_1\ X0) \wedge ((v4_relat_1\ X0\ (u1_struct_0\ k1_scmfsa_2)) \wedge \\ & ((v1_funct_1\ X0) \wedge ((v5_funct_1\ X0\ (k2_memstr_0\ np_3\ k1_scmfsa_2)))))) \Rightarrow \\ & ((v1_relat_1\ (k1_scmfsa_m\ X0)) \wedge ((v4_relat_1\ (k1_scmfsa_m\ X0) \\ & (u1_struct_0\ k1_scmfsa_2)) \wedge ((v1_funct_1\ (k1_scmfsa_m\ X0)) \wedge \\ & ((v5_funct_1\ (k1_scmfsa_m\ X0)\ (k2_memstr_0\ np_3\ k1_scmfsa_2)) \wedge \\ & (v5_memstr_0\ (k1_scmfsa_m\ X0)\ np_3\ k1_scmfsa_2\ k6_numbers)))) \end{aligned} \quad (12)$$

Assume the following.

$$(\neg v2_struct_0\ k1_scmfsa_2) \wedge ((v2_memstr_0\ k1_scmfsa_2\ np_3) \wedge (v1_extpro_1\ k1_scmfsa_2\ np_3)) \quad (13)$$

Assume the following.

$$(v1_extpro_1\ k1_scmfsa_2\ np_3) \wedge (v3_extpro_1\ k1_scmfsa_2\ np_3) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. & (((v1_relat_1\ X1) \wedge ((v5_relat_1 \\ & X1\ X0) \wedge (v1_funct_1\ X1))) \wedge ((v1_relat_1\ X2) \wedge ((v5_relat_1\ X2\ X0) \wedge \\ & (v1_funct_1\ X2)))) \Rightarrow ((v1_relat_1\ (k1_funct_4\ X1\ X2)) \wedge ((v5_relat_1 \\ & (k1_funct_4\ X1\ X2)\ X0) \wedge (v1_funct_1\ (k1_funct_4\ X1\ X2)))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0. \forall X1. (l1_extpro_1\ X1\ X0) \Rightarrow ((l1_memstr_0\ X1\ X0) \wedge (l1_compos_1\ X1)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1_xboole_0 \\ & X0)\wedge(\neg v1_setfam_1 X0))\wedge(((\neg v2_struct_0 X1)\wedge((v2_memstr_0 X1 \\ & X0)\wedge((v3_memstr_0 X1 X0)\wedge((v3_extpro_1 X1 X0)\wedge(l1_extpro_1 X1 \\ & X0))))))\wedge(((v1_relat_1 X2)\wedge((v4_relat_1 X2 k5_numbers)\wedge((v5_relat_1 \\ & X2 (u1_compos_1 X1))\wedge(v1_funct_1 X2)))))\wedge((v1_relat_1 X3)\wedge((\\ & v4_relat_1 X3 (u1_struct_0 X1))\wedge((v1_funct_1 X3)\wedge((v5_funct_1 \\ & X3 (k2_memstr_0 X0 X1))\wedge(v1_partfun1 X3 (u1_struct_0 X1)))))))))\Rightarrow \\ & (m2_subset_1 (k8_extpro_1 X0 X1 X2 X3) k1_numbers k5_numbers) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v4_relat_1 X0 (u1_struct_0 k1_scmf_sa_2))\wedge \\ & ((v1_funct_1 X0)\wedge(v5_funct_1 X0 (k2_memstr_0 np_3 k1_scmf_sa_2))))))\Rightarrow \\ & ((v1_relat_1 (k1_scmf_sa_m X0))\wedge((v4_relat_1 (k1_scmf_sa_m X0) \\ & (u1_struct_0 k1_scmf_sa_2))\wedge((v1_funct_1 (k1_scmf_sa_m X0))\wedge \\ & (v5_funct_1 (k1_scmf_sa_m X0) (k2_memstr_0 np_3 k1_scmf_sa_2)))))) \end{aligned} \quad (18)$$

Assume the following.

$$(v1_extpro_1 k1_scmf_sa_2 np_3)\wedge(l1_extpro_1 k1_scmf_sa_2 np_3) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_relat_1 X0)\wedge(v1_funct_1 X0))\wedge((\\ & v1_relat_1 X1)\wedge(v1_funct_1 X1)))\Rightarrow((v1_relat_1 (k1_funct_4 X0 \\ & X1))\wedge(v1_funct_1 (k1_funct_4 X0 X1))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0)\wedge((v1_relat_1 X0)\wedge((v4_relat_1 \\ & X0 k5_numbers)\wedge((v5_relat_1 X0 (u1_compos_1 k1_scmf_sa_2))\wedge(\\ & (v1_funct_1 X0)\wedge((v1_finset_1 X0)\wedge(v1_afinsq_1 X0))))))\Rightarrow(\\ & \forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 k1_scmf_sa_2))\wedge \\ & ((v1_funct_1 X1)\wedge((v5_funct_1 X1 (k2_memstr_0 np_3 k1_scmf_sa_2))\wedge \\ & (v1_partfun1 X1 (u1_struct_0 k1_scmf_sa_2))))))\Rightarrow(\forall X2. \\ & ((v1_relat_1 X2)\wedge((v4_relat_1 X2 k5_numbers)\wedge((v5_relat_1 X2 \\ & (u1_compos_1 k1_scmf_sa_2))\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 \\ & k5_numbers))))))\Rightarrow((r6_scmf_sa7b X0 X1 X2)\Leftrightarrow(r1_extpro_1 np_3 k1_scmf_sa_2 \\ & (k1_funct_4 X2 X0) (k8_memstr_0 np_3 k1_scmf_sa_2 X1)))))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmfsa_2) \wedge ((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 \\
& X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0))))))) \Rightarrow ((v1_scmfsa6b \\
& X0) \Leftrightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 \\
& k1_scmfsa_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 X1 (k2_memstr_0 \\
& np_3 k1_scmfsa_2)) \wedge ((v1_partfun1 X1 (u1_struct_0 k1_scmfsa_2)) \wedge \\
& (v5_memstr_0 X1 np_3 k1_scmfsa_2 k6_numbers)))))) \Rightarrow (\forall X2. \\
& ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 \\
& (u1_compos_1 k1_scmfsa_2) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 \\
& k5_numbers)))))) \Rightarrow ((r1_tarski X0 X2) \Rightarrow (\forall X3.(m2_subset_1 \\
& X3 k1_numbers k5_numbers) \Rightarrow (k1_funct_1 (k5_extpro_1 np_3 k1_scmfsa_2 \\
& X2 X1 X3) (k4_scmfsa_2 k6_numbers) = k1_funct_1 X1 (k4_scmfsa_2 \\
& k6_numbers))))))
\end{aligned} \tag{22}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmfsa_2) \wedge ((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 \\
& X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0))))))) \Rightarrow (\forall X1.(\\
& (v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 k1_scmfsa_2)) \wedge \\
& ((v1_funct_1 X1) \wedge ((v5_funct_1 X1 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge \\
& (v1_partfun1 X1 (u1_struct_0 k1_scmfsa_2)))))) \Rightarrow (\forall X2. \\
& ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 \\
& (u1_compos_1 k1_scmfsa_2) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 \\
& k5_numbers)))))) \Rightarrow (k1_scmfsa6b X0 X1 X2 = k6_extpro_1 np_3 k1_scmfsa_2 \\
& (k1_funct_4 X2 X0) (k1_scmfsa_m X1)))
\end{aligned} \tag{23}$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_ordinal1) \Rightarrow (v7_ordinal1 X0) \tag{24}$$

Assume the following.

$$\forall X0.(\neg v1_setfam_1 X0) \Rightarrow (\neg v1_xboole_0 X0) \tag{25}$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v7_ordinal1 X0)) \Rightarrow ((\neg v1_xboole_0 \\
X0) \wedge ((v7_ordinal1 X0) \wedge (\neg v1_setfam_1 X0))) \tag{26}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmfsa_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 \\
& X0 k5_numbers)))))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 \\
& X1 (u1_struct_0 k1_scmfsa_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 \\
& X1 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge (v1_partfun1 X1 (u1_struct_0 \\
& k1_scmfsa_2)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& k1_scmfsa_2)) \wedge ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge ((v1_afinsq_1 \\
& X2) \wedge (v1_scmfsa6b X2)))))))))) \Rightarrow ((r6_scmfsa7b X2 (k1_scmfsa_m X1) \\
X0) \Rightarrow ((k1_funct_1 (k1_scmfsa6b X2 X1 X0) (k4_scmfsa_2 k6_numbers) = \\
np_1) \wedge (\forall X3.(m2_subset_1 X3 k1_numbers k5_numbers) \Rightarrow (\\
k1_funct_1 (k5_extpro_1 np_3 k1_scmfsa_2 (k1_funct_4 X0 X2) (\\
k8_memstr_0 np_3 k1_scmfsa_2 (k1_scmfsa_m X1)) X3) (k4_scmfsa_2 \\
k6_numbers) = np_1))))))
\end{aligned}$$