

t13_scmpds_7 (TMYDy- Hix9XtkXyzYJXSVpGStueUutXvDnuc)

October 27, 2020

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 $k1_scmpds_2 : \iota$ 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 $np_2 : \iota$ 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 $v1_ami_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_scmpds_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_scmpds_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_compos_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v3_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_compos_1 : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Assume the following.

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

(1)

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 \ np_2) \wedge (m2_subset_1 \ np_2 \ k1_numbers \ k5_numbers)) \wedge \\ & ((m1_subset_1 \ np_2 \ k5_numbers) \wedge (m1_subset_1 \ np_2 \ k1_numbers)) \end{aligned} \quad (2)$$

Assume the following.

$$\neg v1_xboole_0 \ np_2 \quad (3)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 \ X1) \wedge ((v4_relat_1 \\ & X1 \ X0) \wedge (v1_funct_1 \ X1))) \wedge ((v1_relat_1 \ X2) \wedge ((v4_relat_1 \ X2 \ X0) \wedge \\ & (v1_funct_1 \ X2)))) \Rightarrow ((v1_relat_1 \ (k1_funct_4 \ X1 \ X2)) \wedge ((v4_relat_1 \\ & (k1_funct_4 \ X1 \ X2) \ X0) \wedge (v1_funct_1 \ (k1_funct_4 \ X1 \ X2)))) \end{aligned} \quad (5)$$

Assume the following.

$$(\neg v1_xboole_0 \ k4_ordinal1) \wedge (v3_ordinal1 \ k4_ordinal1) \quad (6)$$

Assume the following.

$$(v1_extpro_1 \ k1_scmpds_2 \ np_2) \wedge (v3_extpro_1 \ k1_scmpds_2 \ np_2) \quad (7)$$

Assume the following.

$$\begin{aligned} & (v2_memstr_0 \ k1_scmpds_2 \ np_2) \wedge ((v3_memstr_0 \ k1_scmpds_2 \ np_2) \wedge \\ & (v1_extpro_1 \ k1_scmpds_2 \ np_2)) \end{aligned} \quad (8)$$

Assume the following.

$$(\neg v2_struct_0 \ k1_scmpds_2) \wedge (v1_extpro_1 \ k1_scmpds_2 \ np_2) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v1_setfam_1 \ X0) \wedge (((\neg v2_struct_0 \\ & X1) \wedge ((v2_memstr_0 \ X1 \ X0) \wedge ((v3_memstr_0 \ X1 \ X0) \wedge (l1_memstr_0 \ X1 \\ & X0)))) \wedge ((v1_relat_1 \ X2) \wedge ((v4_relat_1 \ X2 \ (u1_struct_0 \ X1)) \wedge \\ & (v1_funct_1 \ X2) \wedge ((v5_funct_1 \ X2 \ (k2_memstr_0 \ X0 \ X1)) \wedge (v1_partfun1 \\ & X2 \ (u1_struct_0 \ X1)))))) \Rightarrow ((v1_relat_1 \ (k8_memstr_0 \ X0 \ X1 \ X2)) \wedge \\ & ((v4_relat_1 \ (k8_memstr_0 \ X0 \ X1 \ X2) \ (u1_struct_0 \ X1)) \wedge ((v1_funct_1 \\ & (k8_memstr_0 \ X0 \ X1 \ X2)) \wedge ((v5_funct_1 \ (k8_memstr_0 \ X0 \ X1 \ X2) \ (k2_memstr_0 \\ & X0 \ X1)) \wedge (v1_partfun1 \ (k8_memstr_0 \ X0 \ X1 \ X2) \ (u1_struct_0 \ X1)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 \ X1) \wedge ((v5_relat_1 \\ & X1 \ X0) \wedge (v1_funct_1 \ X1))) \wedge ((v1_relat_1 \ X2) \wedge ((v5_relat_1 \ X2 \ X0) \wedge \\ & (v1_funct_1 \ X2)))) \Rightarrow ((v1_relat_1 \ (k1_funct_4 \ X1 \ X2)) \wedge ((v5_relat_1 \\ & (k1_funct_4 \ X1 \ X2) \ X0) \wedge (v1_funct_1 \ (k1_funct_4 \ X1 \ X2)))) \end{aligned} \quad (11)$$

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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_setfam_1 X0)\wedge((\neg v2_struct_0 \\ & X1)\wedge((v2_memstr_0 X1 X0)\wedge((v3_memstr_0 X1 X0)\wedge(l1_memstr_0 X1 \\ & X0))))\wedge((v1_relat_1 X2)\wedge((v4_relat_1 X2 (u1_struct_0 X1))\wedge \\ & (v1_funct_1 X2)\wedge(v5_funct_1 X2 (k2_memstr_0 X0 X1))))))\Rightarrow((v1_relat_1 \\ & (k8_memstr_0 X0 X1 X2))\wedge((v4_relat_1 (k8_memstr_0 X0 X1 X2) (u1_struct_0 \\ & X1))\wedge((v1_funct_1 (k8_memstr_0 X0 X1 X2))\wedge(v5_funct_1 (k8_memstr_0 \\ & X0 X1 X2) (k2_memstr_0 X0 X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$(v1_extpro_1 k1_scmpds_2 np_2)\wedge(l1_extpro_1 k1_scmpds_2 np_2) \quad (14)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1_compos_1 X0)\wedge((v1_relat_1 X1)\wedge((\\ & v4_relat_1 X1 k5_numbers)\wedge((v5_relat_1 X1 (u1_compos_1 X0))\wedge \\ & ((v1_funct_1 X1)\wedge((v1_finset_1 X1)\wedge(v1_afinsq_1 X1))))))\Rightarrow \\ & ((v1_relat_1 (k10_compos_1 X0 X1))\wedge((v4_relat_1 (k10_compos_1 \\ & X0 X1) k5_numbers)\wedge((v5_relat_1 (k10_compos_1 X0 X1) (u1_compos_1 \\ & X0))\wedge((v1_funct_1 (k10_compos_1 X0 X1))\wedge(v1_finset_1 (k10_compos_1 \\ & X0 X1)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0)\wedge((v1_relat_1 X0)\wedge((v4_relat_1 \\ & X0 k5_numbers)\wedge((v5_relat_1 X0 (u1_compos_1 k1_scmpds_2))\wedge(\\ & (v1_funct_1 X0)\wedge((v1_finset_1 X0)\wedge(v1_afinsq_1 X0))))))\Rightarrow(\\ & \forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 k1_scmpds_2))\wedge \\ & ((v1_funct_1 X1)\wedge((v5_funct_1 X1 (k2_memstr_0 np_2 k1_scmpds_2))\wedge \\ & (v1_partfun1 X1 (u1_struct_0 k1_scmpds_2))))))\Rightarrow(\forall X2. \\ & ((v1_relat_1 X2)\wedge((v4_relat_1 X2 k5_numbers)\wedge((v5_relat_1 X2 \\ & (u1_compos_1 k1_scmpds_2))\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 \\ & k5_numbers))))\Rightarrow(k6_scmpds_4 X0 X1 X2 = k6_extpro_1 np_2 k1_scmpds_2 \\ & (k1_funct_4 X2 (k10_compos_1 k1_scmpds_2 X0) X1))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 X0) \wedge ((v4_relat_1 \\
& X0 k5_numbers) \wedge ((v5_relat_1 X0 (u1_compos_1 k1_scmpds_2)) \wedge \\
& (v1_funct_1 X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0)))))) \Rightarrow (\\
& \forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 k1_scmpds_2)) \wedge \\
& ((v1_funct_1 X1) \wedge ((v5_funct_1 X1 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge \\
& (v1_partfun1 X1 (u1_struct_0 k1_scmpds_2)))))) \Rightarrow (\forall X2. \\
& ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 \\
& (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 \\
& k5_numbers)))))) \Rightarrow ((r2_scmpds_6 X0 X1 X2) \Leftrightarrow (r1_extpro_1 np_2 k1_scmpds_2 \\
& (k1_funct_4 X2 (k10_compos_1 k1_scmpds_2 X0)) (k8_memstr_0 np_2 \\
& k1_scmpds_2 X1))))))
\end{aligned} \tag{18}$$

Assume the following.

$$\forall X0.((v3_ordinal1 X0) \wedge (v1_finset_1 X0)) \Rightarrow (v7_ordinal1 X0) \tag{19}$$

Assume the following.

$$\forall X0.(v3_ordinal1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v3_ordinal1 X1)) \tag{20}$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_ordinal1) \Rightarrow (v1_finset_1 X0) \tag{21}$$

Assume the following.

$$\forall X0.(\neg v1_setfam_1 X0) \Rightarrow (\neg v1_xboole_0 X0) \tag{22}$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v7_ordinal1 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v7_ordinal1 X0) \wedge (\neg v1_setfam_1 X0))) \tag{23}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 \\
& X0 k5_numbers)))))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 \\
& X1 (u1_struct_0 k1_scmpds_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 \\
& X1 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge (v1_partfun1 X1 (u1_struct_0 \\
& k1_scmpds_2)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge (v1_afinsq_1 \\
& X2)))))) \Rightarrow (\forall X3.((v1_ami_2 X3) \wedge (m1_subset_1 X3 (u1_struct_0 \\
& k1_scmpds_2))) \Rightarrow ((r2_scmpds_6 X2 X1 X0) \Rightarrow (k1_funct_1 (k6_scmpds_4 \\
& X2 (k8_memstr_0 np_2 k1_scmpds_2 X1) X0) X3 = k1_funct_1 (k5_extpro_1 \\
& np_2 k1_scmpds_2 (k1_funct_4 X0 (k10_compos_1 k1_scmpds_2 X2)) \\
& (k8_memstr_0 np_2 k1_scmpds_2 X1) (k8_extpro_1 np_2 k1_scmpds_2 \\
& (k1_funct_4 X0 (k10_compos_1 k1_scmpds_2 X2)) (k8_memstr_0 np_2 \\
& k1_scmpds_2 X1))) X3))))))
\end{aligned}$$