

t21_scmpds_7
(TMPD3TtCgSohETfK3DqfuxDeLiKzTigbk3M)

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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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_scmpds_2 : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ 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 $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_afinsq_1 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k8_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_scmpds_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_scmpds_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v5_ordinal1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_valued_0 : \iota \Rightarrow o$ be given. Let $v2_valued_0 : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $v4_valued_0 : \iota \Rightarrow o$ be given. Let $v5_valued_0 : \iota \Rightarrow o$ be given. Let $l1_compos_1 : \iota \Rightarrow o$ 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. Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 (u1_struct_0 k1_scmpds_2)) \wedge \\
& ((v1_funct_1 X0) \wedge ((v5_funct_1 X0 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge \\
& (v1_partfun1 X0 (u1_struct_0 k1_scmpds_2)))))) \Rightarrow (\forall X1. \\
& ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 k5_numbers) \wedge ((v5_relat_1 X1 \\
& (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 \\
& k5_numbers)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge (v1_afinsq_1 \\
& X2)))))) \Rightarrow (\forall X3.((\neg v1_xboole_0 X3) \wedge ((v1_relat_1 X3) \wedge \\
& ((v4_relat_1 X3 k5_numbers) \wedge ((v5_relat_1 X3 (u1_compos_1 k1_scmpds_2)) \wedge \\
& ((v1_funct_1 X3) \wedge ((v1_finset_1 X3) \wedge (v1_afinsq_1 X3)))))) \Rightarrow \\
& (\forall X4.(m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow (((r1_tarski \\
& X2 X3) \wedge ((r1_scmpds_6 X2 X0 X1) \wedge ((r2_scmpds_6 X2 X0 X1) \wedge (r1_xxreal_0 \\
& X4 (k8_extpro_1 np_2 k1_scmpds_2 (k1_funct_4 X1 (k10_compos_1 \\
& k1_scmpds_2 X2)) (k8_memstr_0 np_2 k1_scmpds_2 X0)))))) \Rightarrow (k5_extpro_1 \\
& np_2 k1_scmpds_2 (k1_funct_4 X1 X3) (k8_memstr_0 np_2 k1_scmpds_2 \\
& X0) X4 = k5_extpro_1 np_2 k1_scmpds_2 (k1_funct_4 X1 (k10_compos_1 \\
& k1_scmpds_2 X2)) (k8_memstr_0 np_2 k1_scmpds_2 X0) X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\
& X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge ((v1_funct_1 \\
& X0) \wedge (v1_finset_1 X0)))) \Rightarrow (k2_afinsq_1 X0 = k9_xtuple_0 X0)
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \exists X0.(m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers \\
& k5_numbers))) \wedge ((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 X0) \wedge ((v4_relat_1 \\
& X0 k5_numbers) \wedge ((v5_relat_1 X0 k5_numbers) \wedge ((v1_funct_1 X0) \wedge \\
& ((v1_partfun1 X0 k5_numbers) \wedge ((v1_funct_2 X0 k5_numbers k5_numbers) \wedge \\
& ((v1_valued_0 X0) \wedge ((v2_valued_0 X0) \wedge ((v3_valued_0 X0) \wedge ((v4_valued_0 \\
& X0) \wedge (v5_valued_0 X0))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\neg v1_xboole_0 k1_numbers \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_compos_1 X0) \wedge ((v1_relat_1 X1) \wedge ((\\ & v4_relat_1 X1 k5_numbers) \wedge ((v5_relat_1 X1 (u1_compos_1 X0)) \wedge \\ & ((v1_funct_1 X1) \wedge ((v1_finset_1 X1) \wedge (v1_afinsq_1 X1)))))) \Rightarrow \\ & ((\neg v1_xboole_0 (k10_compos_1 X0 X1)) \wedge ((v1_relat_1 (k10_compos_1 \\ & X0 X1)) \wedge ((v4_relat_1 (k10_compos_1 X0 X1) k5_numbers) \wedge ((v5_relat_1 \\ & (k10_compos_1 X0 X1) (u1_compos_1 X0)) \wedge ((v1_funct_1 (k10_compos_1 \\ & X0 X1)) \wedge ((v1_finset_1 (k10_compos_1 X0 X1)) \wedge (v1_afinsq_1 (k10_compos_1 \\ & X0 X1)))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. (l1_extpro_1 X1 X0) \Rightarrow ((l1_memstr_0 X1 X0) \wedge (l1_compos_1 X1)) \quad (7)$$

Assume the following.

$$m1_subset_1 k5_numbers (k1_zfmisc_1 k1_numbers) \quad (8)$$

Assume the following.

$$(v1_extpro_1 k1_scmpds_2 np_2) \wedge (l1_extpro_1 k1_scmpds_2 np_2) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_compos_1 X0) \wedge ((v1_relat_1 X1) \wedge ((\\ & v4_relat_1 X1 k5_numbers) \wedge ((v5_relat_1 X1 (u1_compos_1 X0)) \wedge \\ & ((v1_funct_1 X1) \wedge ((v1_finset_1 X1) \wedge (v1_afinsq_1 X1)))))) \Rightarrow \\ & ((v1_relat_1 (k10_compos_1 X0 X1)) \wedge ((v4_relat_1 (k10_compos_1 \\ & X0 X1) k5_numbers) \wedge ((v5_relat_1 (k10_compos_1 X0 X1) (u1_compos_1 \\ & X0)) \wedge ((v1_funct_1 (k10_compos_1 X0 X1)) \wedge (v1_finset_1 (k10_compos_1 \\ & X0 X1)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 X0) \wedge ((v4_relat_1 \\ & X0 k5_numbers) \wedge ((v5_relat_1 X0 (u1_compos_1 k1_scmpds_2)) \wedge (\\ & (v1_funct_1 X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0)))))) \Rightarrow (\\ & \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 k1_scmpds_2)) \wedge \\ & ((v1_funct_1 X1) \wedge ((v5_funct_1 X1 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge \\ & (v1_partfun1 X1 (u1_struct_0 k1_scmpds_2)))))) \Rightarrow (\forall X2. \\ & ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 \\ & (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 \\ & k5_numbers)))))) \Rightarrow ((r1_scmpds_6 X0 X1 X2) \Leftrightarrow (\forall X3. (m1_subset_1 \\ & X3 k5_numbers) \Rightarrow (k5_memstr_0 np_2 k1_scmpds_2 (k5_extpro_1 np_2 \\ & k1_scmpds_2 (k1_funct_4 X2 (k10_compos_1 k1_scmpds_2 X0)) (k8_memstr_0 \\ & np_2 k1_scmpds_2 X1) X3) \in k9_xtuple_0 (k10_compos_1 k1_scmpds_2 \\ & X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 \ k5_numbers) \wedge ((v1_funct_1 \\ X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0)))))) \Rightarrow ((v1_relat_1 X0) \wedge \\ ((v5_ordinal1 X0) \wedge (v1_funct_1 X0))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge (v5_relat_1 \\ X1 X0)) \Rightarrow ((v1_xboole_0 X1) \wedge ((v1_relat_1 X1) \wedge (v5_relat_1 X1 X0)))) \end{aligned} \quad (13)$$

Theorem 1

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 \ (u1_struct_0 \ k1_scmpds_2)) \wedge \\ ((v1_funct_1 X0) \wedge ((v5_funct_1 X0 \ (k2_memstr_0 \ np_2 \ k1_scmpds_2)) \wedge \\ (v1_partfun1 X0 \ (u1_struct_0 \ k1_scmpds_2)))))) \Rightarrow (\forall X1. \\ ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 \ k5_numbers) \wedge ((v5_relat_1 X1 \\ (u1_compos_1 \ k1_scmpds_2)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 \\ k5_numbers)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 \\ X2) \wedge ((v4_relat_1 X2 \ k5_numbers) \wedge ((v5_relat_1 X2 \ (u1_compos_1 \\ k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge (v1_afinsq_1 \\ X2))))))) \Rightarrow (\forall X3.((\neg v1_xboole_0 X3) \wedge ((v1_relat_1 X3) \wedge \\ ((v4_relat_1 X3 \ k5_numbers) \wedge ((v5_relat_1 X3 \ (u1_compos_1 \ k1_scmpds_2)) \wedge \\ ((v1_funct_1 X3) \wedge ((v1_finset_1 X3) \wedge (v1_afinsq_1 X3))))))) \Rightarrow \\ (\forall X4.(m2_subset_1 X4 \ k1_numbers \ k5_numbers) \Rightarrow (((r1_xxreal_0 \\ X4 \ (k8_extpro_1 \ np_2 \ k1_scmpds_2 \ (k1_funct_4 \ X1 \ (k10_compos_1 \\ k1_scmpds_2 \ X2)) \ (k8_memstr_0 \ np_2 \ k1_scmpds_2 \ X0))) \wedge ((r1_tarski \\ X2 \ X3) \wedge ((r1_scmpds_6 \ X2 \ X0 \ X1) \wedge (r2_scmpds_6 \ X2 \ X0 \ X1)))) \Rightarrow (k5_memstr_0 \\ np_2 \ k1_scmpds_2 \ (k5_extpro_1 \ np_2 \ k1_scmpds_2 \ (k1_funct_4 \\ X1 \ X3) \ (k8_memstr_0 \ np_2 \ k1_scmpds_2 \ X0) \ X4) \in k2_afinsq_1 \ (k10_compos_1 \\ k1_scmpds_2 \ X2)))))) \end{aligned}$$