

t12_scmisort (TMF-
FcQ4SNccUCv5mL7pyEUBc7HnxL6DXR4j)

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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 $k1_scmf_sa_2 : \iota$ 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 $v1_ami_2 : \iota \Rightarrow o$ be given. Let $v1_scmf_sa_m : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_scm_halt : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_scm_halt : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_scmf_sa_m : \iota \Rightarrow \iota$ be given. Let $k5_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_scmf_sa_9 :$

$\iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmfsa_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 \\
& X0 k5_numbers)))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 \\
& X1 (u1_struct_0 k1_scmfsa_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 \\
& X1 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge (v1_partfun1 X1 (u1_struct_0 \\
& k1_scmfsa_2)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& k1_scmfsa_2)) \wedge ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge (v1_afinsq_1 \\
& X2)))))) \Rightarrow (\forall X3.((v1_ami_2 X3) \wedge ((\neg v1_scmfsa_m X3) \wedge (m1_subset_1 \\
& X3 (u1_struct_0 k1_scmfsa_2)))) \Rightarrow (((r1_scm_halt X2 X1 X0) \wedge (r2_scm_halt \\
& X2 X1 X0)) \Rightarrow ((r1_xxreal_0 (k1_funct_1 X1 X3) k6_numbers) \vee ((k5_memstr_0 \\
& np_3 k1_scmfsa_2 (k5_extpro_1 np_3 k1_scmfsa_2 (k1_funct_4 \\
& X0 (k2_scmfsa_9 X3 X2)) (k1_scmfsa_m X1) (k2_nat_1 (k8_extpro_1 \\
& np_3 k1_scmfsa_2 (k1_funct_4 X0 X2) (k1_scmfsa_m X1)) np_3)) = \\
& k6_numbers) \wedge (\forall X4.(m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow \\
& ((r1_xxreal_0 X4 (k2_nat_1 (k8_extpro_1 np_3 k1_scmfsa_2 (k1_funct_4 \\
& X0 X2) (k1_scmfsa_m X1)) np_3)) \Rightarrow (k5_memstr_0 np_3 k1_scmfsa_2 \\
& (k5_extpro_1 np_3 k1_scmfsa_2 (k1_funct_4 X0 (k2_scmfsa_9 X3 \\
& X2)) (k1_scmfsa_m X1) X4) \in k9_xtuple_0 (k2_scmfsa_9 X3 X2))))))))) \\
& \tag{1}
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 \\
& X0 (u1_compos_1 k1_scmfsa_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 \\
& X0 k5_numbers)))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 \\
& X1 (u1_struct_0 k1_scmfsa_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 \\
& X1 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge (v1_partfun1 X1 (u1_struct_0 \\
& k1_scmfsa_2)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& k1_scmfsa_2)) \wedge ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge (v1_afinsq_1 \\
& X2)))))) \Rightarrow (\forall X3.((v1_ami_2 X3) \wedge ((\neg v1_scmfsa_m X3) \wedge (m1_subset_1 \\
& X3 (u1_struct_0 k1_scmfsa_2)))) \Rightarrow (((r1_scm_halt X2 X1 X0) \wedge (r2_scm_halt \\
& X2 X1 X0)) \Rightarrow ((r1_xxreal_0 (k1_funct_1 X1 X3) k6_numbers) \vee (\forall X4. \\
& (m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow ((r1_xxreal_0 X4 (k2_nat_1 \\
& (k8_extpro_1 np_3 k1_scmfsa_2 (k1_funct_4 X0 X2) (k1_scmfsa_m \\
& X1)) np_3)) \Rightarrow (k5_memstr_0 np_3 k1_scmfsa_2 (k5_extpro_1 np_3 \\
& k1_scmfsa_2 (k1_funct_4 X0 (k2_scmfsa_9 X3 X2)) (k1_scmfsa_m X1) \\
& X4) \in k9_xtuple_0 (k2_scmfsa_9 X3 X2))))))))) \\
& \tag{1}
\end{aligned}$$