

t28_circrm1

(TMaxgHg63atxc4QPmK3ePyiTDydVbh2Pt)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $r1_circrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_msafree2 : \iota \Rightarrow \iota$ be given. Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_pua2mss1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_funct_1 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_relat_1 X2) \wedge (v1_funct_1 \\ & X2)) \Rightarrow ((v2_funct_1 X2) \Rightarrow (k7_relat_1 X2 (k6_subset_1 X0 X1) = k6_subset_1 \\ & (k7_relat_1 X2 X0) (k7_relat_1 X2 X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1_relat_1 X0) \Rightarrow (\forall X1. (v1_relat_1 X1) \Rightarrow ((r1_tarski \\ & (k9_xtuple_0 X0) (k10_xtuple_0 X1)) \Rightarrow (k10_xtuple_0 (k3_relat_1 \\ & X1 X0) = k10_xtuple_0 X0))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\ & X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 \\ & X3)) \Rightarrow ((r1_circtrm1 X0 X1 X2 X3) \Rightarrow ((k10_xtuple_0 X2 = u1_struct_0 \\ & X1) \wedge (k10_xtuple_0 X3 = u4_struct_0 X1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\ & X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 \\ & X3)) \Rightarrow ((r1_circtrm1 X0 X1 X2 X3) \Rightarrow ((u1_struct_0 X1 = k7_relat_1 X2 \\ & (u1_struct_0 X0)) \wedge (u4_struct_0 X1 = k7_relat_1 X3 (u4_struct_0 \\ & X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.(v1_relat_1 X1) \Rightarrow (k10_xtuple_0 (k3_relat_1 X0 X1) = k7_relat_1 X1 (k10_xtuple_0 X0))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v5_relat_1 X1 X0)) \Rightarrow (k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_msualg_1 X0) \Rightarrow ((v1_funct_1 (u2_msualg_1 X0)) \wedge \\ & ((v1_funct_2 (u2_msualg_1 X0) (u4_struct_0 X0) (u1_struct_0 X0)) \wedge \\ & (m1_subset_1 (u2_msualg_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\ & X0) (u1_struct_0 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (m1_subset_1 (k1_relset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\ & X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 \\ & X3)) \Rightarrow ((r1_circtrm1 X0 X1 X2 X3) \Leftrightarrow ((v2_funct_1 X2) \wedge ((v2_funct_1 \\ & X3) \wedge ((r3_pua2mss1 X0 X1 X2 X3) \wedge (r3_pua2mss1 X1 X0 (k2_funct_1 X2) \\ & (k2_funct_1 X3)))))))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (k3_msafree2 X0 = k2_relset_1 (u1_struct_0 X0) (u2_msualg_1 X0)) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (k2_msafree2 X0 = k6_subset_1 (u1_struct_0 X0) (k2_relset_1 (u1_struct_0 X0) (u2_msualg_1 X0))) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_msualg_1 X0) \Rightarrow (\forall X1.(l1_msualg_1 X1) \Rightarrow (\forall X2. \\ ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 \\ X3) \wedge (v1_funct_1 X3)) \Rightarrow ((r3_pua2mss1 X0 X1 X2 X3) \Leftrightarrow ((k9_xtuple_0 \\ X2 = u1_struct_0 X0) \wedge ((k9_xtuple_0 X3 = u4_struct_0 X0) \wedge ((r1_tarski \\ (k10_xtuple_0 X2) (u1_struct_0 X1)) \wedge ((r1_tarski (k10_xtuple_0 \\ X3) (u4_struct_0 X1)) \wedge ((k3_relat_1 (u2_msualg_1 X0) X2 = k3_relat_1 \\ X3 (u2_msualg_1 X1)) \wedge (\forall X4.\forall X5.((v1_relat_1 X5) \wedge \\ (v1_funct_1 X5)) \Rightarrow (((X4 \in u4_struct_0 X0) \wedge (X5 = k1_funct_1 (u1_msualg_1 \\ X0) X4)) \Rightarrow (k3_relat_1 X5 X2 = k1_funct_1 (u1_msualg_1 X1) (k1_funct_1 \\ X3 X4)))))))))))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (16)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\ X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 \\ X3)) \Rightarrow ((r1_circtrm1 X0 X1 X2 X3) \Rightarrow ((k7_relat_1 X2 (k2_msafree2 X0) = \\ k2_msafree2 X1) \wedge (k7_relat_1 X2 (k3_msafree2 X0) = k3_msafree2 \\ X1)))))) \end{aligned}$$