

t52_tops_2 (TM-
LxWdzS5naWpYwDEmPY2Wgx5GzbveSAH5D)

October 27, 2020

Let $l1_struct.0 : \iota \Rightarrow o$ be given. Let $v1_funct.1 : \iota \Rightarrow o$ be given. Let $v1_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct.0 : \iota \Rightarrow \iota$ be given. Let $m1_subset.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc.1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_struct.0 : \iota \Rightarrow \iota$ be given. Let $v2_funct.1 : \iota \Rightarrow o$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tops.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_partfun1 : \iota \Rightarrow \iota$ be given. Let $k1_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat.1 : \iota \Rightarrow o$ be given. Let $k3_relat.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funct.1 : \iota \Rightarrow \iota$ be given. Let $k4_relat.1 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple.0 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple.0 : \iota \Rightarrow \iota$ be given. Let $v5_relat.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_relat.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_funct.2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat.1 X0) \wedge (v1_funct.1 X0)) \Rightarrow ((v2_funct.1 X0) \Rightarrow \\ & ((k3_relat.1 X0 (k2_funct.1 X0) = k4_relat.1 (k9_xtuple.0 X0)) \wedge \\ & (k3_relat.1 (k2_funct.1 X0) X0 = k4_relat.1 (k10_xtuple.0 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.k6_partfun1 X0 = k4_relat.1 X0 \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat.1 X1) \wedge (v5_relat.1 X1 X0)) \Rightarrow (k2_relset.1 X0 X1 = k10_xtuple.0 X1) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat.1 X1) \wedge (v4_relat.1 X1 X0)) \Rightarrow (k1_relset.1 X0 X1 = k9_xtuple.0 X1) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1_funct.1 X4) \wedge (m1_subset.1 X4 (k1_zfmisc.1 (k2_zfmisc.1 \\ & X0 X1)))) \wedge ((v1_funct.1 X5) \wedge (m1_subset.1 X5 (k1_zfmisc.1 (k2_zfmisc.1 \\ & X2 X3)))))) \Rightarrow (k1_partfun1 X0 X1 X2 X3 X4 X5 = k3_relat.1 X4 X5) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow \\ & ((v1_funct_1 (k2_tops_2 X0 X1 X2))\wedge((v1_funct_2 (k2_tops_2 X0 \\ & X1 X2) X1 X0)\wedge(m1_subset_1 (k2_tops_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow \\ & ((v3_funct_2 X2 X0 X1)\Rightarrow(k2_tops_2 X0 X1 X2 = k2_funct_1 X2)) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0)\Rightarrow(k2_struct_0 X0 = u1_struct_0 X0) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(\\ & (v2_funct_2 X1 X0)\Leftrightarrow(k2_relset_1 X0 X1 = X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))\Rightarrow(((v1_funct_1 X2)\wedge((v2_funct_1 X2)\wedge(v2_funct_2 \\ & X2 X1)))\Rightarrow((v1_funct_1 X2)\wedge(v3_funct_2 X2 X0 X1))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.(l1_struct_0 X0)\Rightarrow(\forall X1.(l1_struct_0 X1)\Rightarrow(\forall X2. \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\ & X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1))))))\Rightarrow(((k2_relset_1 (u1_struct_0 X1) X2 = \\ & k2_struct_0 X1)\wedge(v2_funct_1 X2))\Rightarrow((k1_partfun1 (u1_struct_0 \\ & X0) (u1_struct_0 X1) (u1_struct_0 X1) (u1_struct_0 X0) X2 (k2_tops_2 \\ & (u1_struct_0 X0) (u1_struct_0 X1) X2) = k6_partfun1 (k1_relset_1 \\ & (u1_struct_0 X0) X2))\wedge(k1_partfun1 (u1_struct_0 X1) (u1_struct_0 \\ & X0) (u1_struct_0 X0) (u1_struct_0 X1) (k2_tops_2 (u1_struct_0 \\ & X0) (u1_struct_0 X1) X2) X2 = k6_partfun1 (k2_relset_1 (u1_struct_0 \\ & X1) X2)))))) \end{aligned}$$