

t58_tops_2
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Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ 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 $v3_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k7_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funct_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k8_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k2_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((v2_funct_1 X1) \Rightarrow (k7_relat_1 X1 X0 = k8_relat_1 (k2_funct_1 X1) X0)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((v2_funct_1 X1) \Rightarrow (r1_tarski (k8_relat_1 X1 (k7_relat_1 X1 X0)) X0)) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((r1_tarski X0 (k10_xtuple_0 X1)) \Rightarrow (k7_relat_1 X1 (k8_relat_1 X1 X0) = X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1) \Rightarrow ((r1_tarski X0 (k9_xtuple_0 X1)) \Rightarrow (r1_tarski X0 (k8_relat_1 X1 (k7_relat_1 X1 X0)))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(k8_relset_1 X0 X1 X2 X3 = k8_relat_1 X2 X3) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(k7_relset_1 X0 X1 X2 X3 = k7_relat_1 X2 X3) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (9)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v2_funct_1 X0)))\Rightarrow((v1_relat_1 (k2_funct_1 X0))\wedge((v1_funct_1 (k2_funct_1 X0))\wedge(v2_funct_1 (k2_funct_1 X0)))) \quad (10)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(l1_struct_0 X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(m1_subset_1 (k8_relset_1 X0 X1 X2 X3) (k1_zfmisc_1 X0)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow((v1_funct_1 (k2_tops_2 X0 X1 X2))\wedge((v1_funct_2 (k2_tops_2 X0 X1 X2) X1 X0)\wedge(m1_subset_1 (k2_tops_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \quad (13)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(l1_pre_topc\ X1) \Rightarrow (\forall X2. \\
& ((v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ (u1_struct_0\ X0)\ (u1_struct_0 \\
& X1)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0 \\
& X0)\ (u1_struct_0\ X1)))))) \Rightarrow ((v5_pre_topc\ X2\ X0\ X1) \Leftrightarrow (\forall X3. \\
& (m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X1))) \Rightarrow ((v4_pre_topc \\
& X3\ X1) \Rightarrow (v4_pre_topc\ (k8_reset_1\ (u1_struct_0\ X0)\ (u1_struct_0 \\
& X1)\ X2\ X3)\ X0))))))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(l1_pre_topc\ X1) \Rightarrow (\forall X2. \\
& ((v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ (u1_struct_0\ X0)\ (u1_struct_0 \\
& X1)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0 \\
& X0)\ (u1_struct_0\ X1)))))) \Rightarrow ((v3_tops_2\ X2\ X0\ X1) \Leftrightarrow ((k1_reset_1 \\
& (u1_struct_0\ X0)\ X2 = k2_struct_0\ X0) \wedge ((k2_reset_1\ (u1_struct_0 \\
& X1)\ X2 = k2_struct_0\ X1) \wedge ((v2_funct_1\ X2) \wedge ((v5_pre_topc\ X2\ X0\ X1) \wedge \\
& (v5_pre_topc\ (k2_tops_2\ (u1_struct_0\ X0)\ (u1_struct_0\ X1)\ X2) \\
& X1\ X0))))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((v1_funct_1\ X2) \wedge ((v1_funct_2 \\
& X2\ X0\ X1) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1)))))) \Rightarrow \\
& ((v3_funct_2\ X2\ X0\ X1) \Rightarrow (k2_tops_2\ X0\ X1\ X2 = k2_funct_1\ X2))
\end{aligned} \tag{16}$$

Assume the following.

$$\forall X0.(l1_struct_0\ X0) \Rightarrow (k2_struct_0\ X0 = u1_struct_0\ X0) \tag{17}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_relat_1\ X1) \wedge (v5_relat_1\ X1\ X0)) \Rightarrow (\\
& (v2_funct_2\ X1\ X0) \Leftrightarrow (k2_reset_1\ X0\ X1 = X0))
\end{aligned} \tag{18}$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1) \Leftrightarrow ((r1_tarski\ X0\ X1) \wedge (r1_tarski\ X1\ X0)) \tag{19}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\
& (k2_zfmisc_1\ X0\ X1))) \Rightarrow (((v1_funct_1\ X2) \wedge ((v2_funct_1\ X2) \wedge (v2_funct_2 \\
& X2\ X1))) \Rightarrow ((v1_funct_1\ X2) \wedge (v3_funct_2\ X2\ X0\ X1)))
\end{aligned} \tag{20}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\
& (k2_zfmisc_1\ X0\ X1))) \Rightarrow ((v4_relat_1\ X2\ X0) \wedge (v5_relat_1\ X2\ X1))
\end{aligned} \tag{21}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (22)$$

Theorem 1

$$\begin{aligned} & \forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.((\neg v2_struct_0 X1)\wedge \\ & (l1_pre_topc X1))\Rightarrow(\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 (u1_struct_0 X0) (u1_struct_0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1))))))\Rightarrow((v3_tops_2 \\ & X2 X0 X1)\Leftrightarrow((k1_relset_1 (u1_struct_0 X0) X2 = k2_struct_0 X0)\wedge(\\ & (k2_relset_1 (u1_struct_0 X1) X2 = k2_struct_0 X1)\wedge((v2_funct_1 \\ & X2)\wedge(\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow \\ & ((v4_pre_topc X3 X0)\Leftrightarrow(v4_pre_topc (k7_relset_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1) X2 X3) X1)))))))))) \end{aligned}$$