

t31_topgrp_1

(TMQSmtSgsDUza7JrSaBjBjPeMqEhmuyTZyg)

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Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $m3_topgrp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $r1_tarSKI : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_topgrp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_pre_topc X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_pre_topc X2)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X4. \\ & ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 X1) (u1_struct_0 \\ & X2)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X1) (u1_struct_0 X2)))))) \Rightarrow (((v3_tops_2 X3 X0 X1) \wedge (v3_tops_2 X4 \\ & X1 X2)) \Rightarrow (v3_tops_2 (k1_partfun1 (u1_struct_0 X0) (u1_struct_0 \\ & X1) (u1_struct_0 X1) (u1_struct_0 X2) X3 X4) X0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarSKI X0 X1) \quad (3)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m3_topgrp_1 X1 X0) \Leftrightarrow (m2_topgrp_1 X1 X0)) \quad (4)$$

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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X0)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow((v1_funct_1 (k3_relat_1 \\ & X3 X2))\wedge(v1_funct_2 (k3_relat_1 X3 X2) X0 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.((v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(v1_xboole_0 (u1_struct_0 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m2_topgrp_1 X1 X0)\Rightarrow \\ & ((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\ & X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(l1_struct_0 X0) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1_funct_1 X4)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X5)\wedge(m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3))))\Rightarrow((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5))\wedge(m1_subset_1 \\ & (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge((\\ & v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 X0))\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0))))))\Rightarrow \\ & ((m2_topgrp_1 X1 X0)\Leftrightarrow(v3_tops_2 X1 X0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m2_topgrp_1 X1 X0)\Rightarrow (v3_tops_2 X1 X0 X0)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(v1_xboole_0 X0)\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))\Rightarrow(v1_xboole_0 X2)) \quad (13)$$

Theorem 1

$$\forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m3_topgrp_1 X1 X0)\Rightarrow(\forall X2.(m3_topgrp_1 X2 X0)\Rightarrow(m3_topgrp_1 (k1_partfun1 (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 X0) X2 X1) X0)))$$