

t43_topgrp_1

(TMKpUrd1WF8strcyaVQKMgcoNA4xiQZ9auo)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $v2_group_1 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v4_topgrp_1 : \iota \Rightarrow o$ be given. Let $l1_topgrp_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m3_topgrp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_topgrp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_group_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $m2_topgrp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $v2_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge ((v3_group_1 \\ & X0) \wedge (l3_algstr_0 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (r2_funct_2 (u1_struct_0 X0) (u1_struct_0 X0) (k2_tops_2 \\ & (u1_struct_0 X0) (u1_struct_0 X0) (k1_topgrp_1 X0 X1)) (k1_topgrp_1 \\ & X0 (k2_group_1 X0 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m3_topgrp_1 X1 X0) \Leftrightarrow (m2_topgrp_1 X1 X0)) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge \\ & ((v3_group_1 X0) \wedge (l3_algstr_0 X0)))) \wedge (m1_subset_1 X1 (u1_struct_0 \\ & X0))) \Rightarrow ((v1_funct_1 (k1_topgrp_1 X0 X1)) \wedge ((v2_funct_1 (k1_topgrp_1 \\ & X0 X1)) \wedge ((v1_funct_2 (k1_topgrp_1 X0 X1) (u1_struct_0 X0) (u1_struct_0 \\ & X0)) \wedge (v2_funct_2 (k1_topgrp_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$v1_xboole_0 \quad k1_xboole_0 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge \\ & ((v4_topgrp_1 X0) \wedge (l1_topgrp_1 X0)))) \wedge (m1_subset_1 X1 (u1_struct_0 \\ & X0))) \Rightarrow ((v1_funct_1 (k1_topgrp_1 X0 X1)) \wedge ((v1_funct_2 (k1_topgrp_1 \\ & X0 X1) (u1_struct_0 X0) (u1_struct_0 X0)) \wedge (v5_pre_topc (k1_topgrp_1 \\ & X0 X1) X0 X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0. (l3_algstr_0 X0) \Rightarrow (l1_struct_0 X0) \quad (8)$$

Assume the following.

$$\forall X0. (l1_topgrp_1 X0) \Rightarrow ((l3_algstr_0 X0) \wedge (l1_pre_topc X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow \\ & ((v1_funct_1 (k2_tops_2 X0 X1 X2)) \wedge ((v1_funct_2 (k2_tops_2 X0 \\ & X1 X2) X1 X0) \wedge (m1_subset_1 (k2_tops_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge \\ & ((v3_group_1 X0) \wedge (l3_algstr_0 X0)))) \wedge (m1_subset_1 X1 (u1_struct_0 \\ & X0))) \Rightarrow (m1_subset_1 (k2_group_1 X0 X1) (u1_struct_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \wedge \\ & (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow ((v1_funct_1 (k1_topgrp_1 \\ & X0 X1)) \wedge ((v1_funct_2 (k1_topgrp_1 X0 X1) (u1_struct_0 X0) (u1_struct_0 \\ & X0)) \wedge (m1_subset_1 (k1_topgrp_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (l1_pre_topc X1) \Rightarrow (\forall X2. \\ & ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\ & X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1)))))) \Rightarrow ((v3_tops_2 X2 X0 X1) \Leftrightarrow ((k1_relset_1 \\ & (u1_struct_0 X0) X2 = k2_struct_0 X0) \wedge ((k2_relset_1 (u1_struct_0 \\ & X1) X2 = k2_struct_0 X1) \wedge ((v2_funct_1 X2) \wedge ((v5_pre_topc X2 X0 X1) \wedge \\ & (v5_pre_topc (k2_tops_2 (u1_struct_0 X0) (u1_struct_0 X1) X2) \\ & X1 X0)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge ((\\ & v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge (m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow \\ & ((m2_topgrp_1 X1 X0) \Leftrightarrow (v3_tops_2 X1 X0 X0)) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0. (l1_struct_0 X0) \Rightarrow (k2_struct_0 X0 = u1_struct_0 X0) \quad (15)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v5_relat_1 X1 X0)) \Rightarrow (\\ (v2_funct_2 X1 X0) \Leftrightarrow (k2_relset_1 X0 X1 = X0)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))) \Rightarrow (((X1 \neq k1_xboole_0) \Rightarrow ((v1_funct_2 X2 X0 \\ & X1) \Leftrightarrow (X0 = k1_relset_1 X0 X2))) \wedge ((X1 = k1_xboole_0) \Rightarrow ((v1_funct_2 \\ & X2 X0 X1) \Leftrightarrow (X2 = k1_xboole_0)))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (18)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (19)$$

Theorem 1

$$\begin{aligned} \forall X0. (& \neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge ((v2_group_1 \\ X0) \wedge (& (v3_group_1 X0) \wedge ((v4_topgrp_1 X0) \wedge (l1_topgrp_1 X0)))))) \Rightarrow \\ (& \forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (m3_topgrp_1 (\\ & k1_topgrp_1 X0 X1) X0)) \end{aligned}$$