

t40\_topgrp\_1  
(TMHx16nFZBCCsCqY6NUfkVhiAjP3dBBNKkU)

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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  $l1\_topgrp\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_connsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_group\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_topgrp\_1 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_group\_1 : \iota \Rightarrow \iota$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (k7\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) (k3\_group\_1 X0) X1 = k1\_group\_2 X0 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge \\ & (l1\_pre\_topc X0))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. \\ & (m1\_connsp\_2 X2 X0 X1) \Rightarrow (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(l1\_topgrp\_1 X0) \Rightarrow ((l3\_algstr\_0 X0) \wedge (l1\_pre\_topc X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow ((v1\_funct\_1 (k3\_group\_1 X0)) \wedge ((v1\_funct\_2 \\ & (k3\_group\_1 X0) (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & (k3\_group\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l1\_topgrp\_1 X0)))) \Rightarrow ((v3\_topgrp\_1 X0) \Leftrightarrow (v5\_pre\_topc (k3\_group\_1 X0) X0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))) \Rightarrow ((X1 = k3\_group\_1 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1 X2 = k2\_group\_1 X0 X2)))) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow ((v5\_pre\_topc X2 X0 X1) \Leftrightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_connspace\_2 X4 X1 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X3)) \Rightarrow (\exists X5.(m1\_connspace\_2 X5 X0 X3) \wedge (r1\_tarski (k7\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X5) X4)))))) \quad (7)$$

### Theorem 1

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l1\_topgrp\_1 X0)))))) \Rightarrow ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_connspace\_2 X2 X0 (k2\_group\_1 X0 X1)) \Rightarrow (\exists X3.(m1\_connspace\_2 X3 X0 X1) \wedge (r1\_tarski (k1\_group\_2 X0 X3) X2)))) \Rightarrow (v3\_topgrp\_1 X0))$$