

# t32\_topgrp\_1 (TMaxYXj- CLaDdW8t8YKqBYpsua7WXoEqha6o)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_topgrp\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $u2\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X1) \wedge \\ & ((v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \wedge ((m1\_subset\_1 X2 X0) \wedge \\ & (m1\_subset\_1 X3 X0))) \Rightarrow (k5\_binop\_1 X0 X1 X2 X3 = k1\_binop\_1 X1 X2 X3) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3\_algstr\_0 X0) \Rightarrow ((v1\_funct\_1 (u2\_algstr\_0 X0)) \wedge \\ & ((v1\_funct\_2 (u2\_algstr\_0 X0) (k2\_zfmisc\_1 (u1\_struct\_0 X0) ( \\ & u1\_struct\_0 X0)) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (u2\_algstr\_0 \\ & X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) ( \\ & u1\_struct\_0 X0)) (u1\_struct\_0 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow ((v15\_algstr\_0 (k5\_topgrp\_1 X0)) \wedge (l3\_algstr\_0 (k5\_topgrp\_1 X0))) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. ((v15\_algstr\_0 X1) \wedge \\ & (l3\_algstr\_0 X1)) \Rightarrow ((X1 = k5\_topgrp\_1 X0) \Leftrightarrow (\forall X2. ((X2 \in u1\_struct\_0 \\ & X1) \Rightarrow (m3\_topgrp\_1 X2 X0)) \wedge (((m3\_topgrp\_1 X2 X0) \Rightarrow (X2 \in u1\_struct\_0 \\ & X1)) \wedge (\forall X3. (m3\_topgrp\_1 X3 X0) \Rightarrow (\forall X4. (m3\_topgrp\_1 \\ & X4 X0) \Rightarrow (k1\_binop\_1 (u2\_algstr\_0 X1) X3 X4 = k1\_partfun1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 X0) X3 X4)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l3\_algstr\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\ & X0 X1 X2 = k5\_binop\_1 (u1\_struct\_0 X0) (u2\_algstr\_0 X0) X1 X2))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m3\_topgrp\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m3\_topgrp\_1 X2 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 ( \\ & u1\_struct\_0 (k5\_topgrp\_1 X0))) \Rightarrow (\forall X4.(m1\_subset\_1 X4 ( \\ & u1\_struct\_0 (k5\_topgrp\_1 X0))) \Rightarrow (((X1 = X3) \wedge (X2 = X4)) \Rightarrow (k6\_algstr\_0 \\ & (k5\_topgrp\_1 X0) X3 X4 = k1\_partfun1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1 X2)))))) \end{aligned}$$