

t62\_tops\_2  
(TMJbHdXCfkatpieFaQ4u6J7JJjSTmLpg4WR)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  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  $u1\_struct\_0 : \iota \Rightarrow \iota$  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  $v2\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k2\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (((v5\_pre\_topc X2 X0 X1) \wedge ( \\ & v2\_connsp\_1 X3 X0)) \Rightarrow (v2\_connsp\_1 (k7\_relset\_1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1) X2 X3) X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_struct\_0 X0) \Rightarrow (\forall X1. (l1\_struct\_0 X1) \Rightarrow (\forall X2. \\ & ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X1))) \Rightarrow (((k2\_relset\_1 (u1\_struct\_0 X1) X2 = k2\_struct\_0 \\ & X1) \wedge (v2\_funct\_1 X2)) \Rightarrow (k8\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) X2 X3 = k7\_relset\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0) (k2\_tops\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow (l1\_struct\_0 X0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow \\ & ((v1\_funct\_1 (k2\_tops\_2 X0 X1 X2)) \wedge ((v1\_funct\_2 (k2\_tops\_2 X0 \\ & X1 X2) X1 X0) \wedge (m1\_subset\_1 (k2\_tops\_2 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X1 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (l1\_pre\_topc X1) \Rightarrow (\forall X2. \\ & ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)))))) \Rightarrow ((v3\_tops\_2 X2 X0 X1) \Leftrightarrow ((k1\_relset\_1 \\ & (u1\_struct\_0 X0) X2 = k2\_struct\_0 X0) \wedge ((k2\_relset\_1 (u1\_struct\_0 \\ & X1) X2 = k2\_struct\_0 X1) \wedge ((v2\_funct\_1 X2) \wedge ((v5\_pre\_topc X2 X0 X1) \wedge \\ & (v5\_pre\_topc (k2\_tops\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) \\ & X1 X0)))))))))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow (((v3\_tops\_2 X2 X0 X1) \wedge (v2\_connsp\_1 \\ & X3 X1)) \Rightarrow (v2\_connsp\_1 (k8\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) X2 X3) X0)))))) \end{aligned}$$