

t11\_topalg\_5 (TMY-  
iBD9FauYXcThY8MqgWWkubLZjUXEmFqC)

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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  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_connsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_connsp\_2 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ & (m1\_pre\_topc X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X1)))) \Rightarrow ((X2 = X3) \Rightarrow (k1\_pre\_topc X0 X2 = k1\_pre\_topc \\ & X1 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_pre\_topc X1 X0) \Rightarrow (l1\_pre\_topc X1)) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0)))) \Rightarrow ((v2\_connsp\_2 X1 X0) \Leftrightarrow (v1\_connsp\_2 (k1\_pre\_topc \\ & X0 X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. (m1\_pre\_topc X1 X0) \Rightarrow (v2\_pre\_topc X1)) \quad (4)$$

**Theorem 1**

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