

## t47\_tops\_2

(TMUqZ5RKnEJuxj7h726NRxL9akbXdF9np7B)

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Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  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  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_tops\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_3 : \iota \Rightarrow \iota$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (l1\_pre\_topc X1) \Rightarrow (\forall X2. \\ & ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)))))) \Rightarrow (((k2\_struct\_0 X1 = k1\_xboole\_0) \Rightarrow ( \\ & k2\_struct\_0 X0 = k1\_xboole\_0)) \Rightarrow ((v5\_pre\_topc X2 X0 X1) \Leftrightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow ((v3\_pre\_topc \\ & X3 X1) \Rightarrow (v3\_pre\_topc (k8\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) X2 X3) X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X0 \in k9\_xtuple\_0 (k3\_funct\_3 X1)) \Rightarrow (k1\_funct\_1 (k3\_funct\_3 X1) X0 = k8\_relat\_1 X1 X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(k8\_relset\_1 X0 X1 X2 X3 = k8\_relat\_1 X2 X3) \quad (4)$$

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.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (6)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(l1\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow((v1\_relat\_1 (k3\_funct\_3 X0))\wedge(v1\_funct\_1 (k3\_funct\_3 X0))) \quad (8)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.\forall X2.(X2 = k7\_relat\_1 X0 X1)\Leftrightarrow(\forall X3.(X3 \in X2)\Leftrightarrow(\exists X4.(X4 \in k9\_xtuple\_0 X0)\wedge((X4 \in X1)\wedge(X3 = k1\_funct\_1 X0 X4)))) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0)\Rightarrow(k2\_struct\_0 X0 = u1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))\Rightarrow((v1\_tops\_2 X1 X0)\Leftrightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow((X2 \in X1)\Rightarrow(v3\_pre\_topc X2 X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (12)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge \\ & (l1\_pre\_topc X1))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge((v1\_funct\_2 \\ & X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1))))))\Rightarrow(\forall X3. \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X1))))\Rightarrow \\ & (((v5\_pre\_topc X2 X0 X1)\wedge(v1\_tops\_2 X3 X1))\Rightarrow(\forall X4.(m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))\Rightarrow((X4 = k7\_relat\_1 \\ & (k3\_funct\_3 X2) X3)\Rightarrow(v1\_tops\_2 X4 X0)))))) \end{aligned}$$