

## t12\_tops\_3

(TMEnV2HyWt7sV3ddMY1WQJoRRCyMBHVvyzK)

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Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  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  $v2\_tops\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((v2\_tops\_1 \\ & X1 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \Rightarrow (((r1\_tarski X2 X1) \wedge (v3\_pre\_topc X2 X0)) \Rightarrow (X2 = k1\_xboole\_0)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (((X1 = k2\_struct\_0 X0) \Rightarrow (k3\_subset\_1 (u1\_struct\_0 \\ & X0) X1 = k1\_struct\_0 X0)) \wedge (((k3\_subset\_1 (u1\_struct\_0 X0) X1 = k1\_struct\_0 \\ & X0) \Rightarrow (X1 = k2\_struct\_0 X0)) \wedge ((X1 = u1\_struct\_0 X0) \Rightarrow (k3\_subset\_1 \\ & (u1\_struct\_0 X0) X1 = k1\_xboole\_0)) \wedge ((k3\_subset\_1 (u1\_struct\_0 \\ & X0) X1 = k1\_xboole\_0) \Rightarrow (X1 = u1\_struct\_0 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (((X1 = k1\_struct\_0 X0) \Rightarrow (k3\_subset\_1 (u1\_struct\_0 \\ & X0) X1 = k2\_struct\_0 X0)) \wedge (((k3\_subset\_1 (u1\_struct\_0 X0) X1 = k2\_struct\_0 \\ & X0) \Rightarrow (X1 = k1\_struct\_0 X0)) \wedge ((X1 = k1\_xboole\_0) \Rightarrow (k3\_subset\_1 \\ & (u1\_struct\_0 X0) X1 = u1\_struct\_0 X0)) \wedge ((k3\_subset\_1 (u1\_struct\_0 \\ & X0) X1 = u1\_struct\_0 X0) \Rightarrow (X1 = k1\_xboole\_0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(\forall X2. \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow((r1\_tarski X1 X2)\Leftrightarrow(r1\_tarski \\ & (k3\_subset\_1 X0 X2) (k3\_subset\_1 X0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski X0 X0 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(k3\_subset\_1 \\ & X0 (k3\_subset\_1 X0 X1) = X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge \\ & ((v3\_pre\_topc X1 X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))))\Rightarrow(v4\_pre\_topc (k3\_subset\_1 (u1\_struct\_0 X0) X1) X0) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge \\ & ((v4\_pre\_topc X1 X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))))\Rightarrow(v3\_pre\_topc (k3\_subset\_1 (u1\_struct\_0 X0) X1) X0) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(m1\_subset\_1 \\ & (k3\_subset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow((v2\_tops\_1 \\ & X1 X0)\Leftrightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))\Rightarrow(((r1\_tarski (k3\_subset\_1 (u1\_struct\_0 X0) X1) X2)\wedge(v4\_pre\_topc \\ & X2 X0))\Rightarrow(X2 = u1\_struct\_0 X0)))))) \end{aligned}$$