

t39\_topgen\_4  
(TMasDtAh2gL2PeWzbtX3No5cor6Kb4vcXDm)

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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  $m1\_subset.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc.1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $v5\_topgen.4 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_subset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_card.3 : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $k3\_setfam.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole.0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_ordinal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_card.1 : \iota \Rightarrow \iota$  be given. Let  $k2\_topgen.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_tops.2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_setfam.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. ((v4\_card.3 X0) \wedge (v4\_card.3 X1)) \Rightarrow (v4\_card.3 (k2\_zfmisc.1 X0 X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. k3\_tarski (k3\_setfam.1 X0 X1) = k3\_xboole.0 (k3\_tarski X0) (k3\_tarski X1) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset.1 X1 (k1\_zfmisc.1 (k1\_zfmisc.1 X0))) \Rightarrow (\forall X2. (m1\_subset.1 X2 (k1\_zfmisc.1 (k1\_zfmisc.1 X0))) \Rightarrow (r1\_ordinal1 (k1\_card.1 (k2\_topgen.4 X0 X1 X2)) (k1\_card.1 (k2\_zfmisc.1 X1 X2)))) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct.0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1. (m1\_subset.1 X1 (k1\_zfmisc.1 (k1\_zfmisc.1 (u1\_struct.0 X0)))) \Rightarrow (\forall X2. (m1\_subset.1 X2 (k1\_zfmisc.1 (k1\_zfmisc.1 (u1\_struct.0 X0)))) \Rightarrow (((v2\_tops.2 X1 X0) \wedge (v2\_tops.2 X2 X0)) \Rightarrow (v2\_tops.2 (k2\_topgen.4 (u1\_struct.0 X0) X1 X2) X0)))) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. ((r1\_ordinal1 (k1\_card.1 X0) (k1\_card.1 X1)) \wedge (v4\_card.3 X1)) \Rightarrow (v4\_card.3 X0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow(k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0)))\Rightarrow(k5\_setfam\_1 X0 X1 = k3\_tarski X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0)))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))))\Rightarrow(k2\_topgen\_4 X0 X1 X2 = k3\_setfam\_1 X1 X2) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow(m1\_subset\_1 (k9\_subset\_1 X0 X1 X2) (k1\_zfmisc\_1 X0)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0)))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))))\Rightarrow(m1\_subset\_1 (k2\_topgen\_4 X0 X1 X2) (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \quad (10)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow((v5\_topgen\_4 X1 X0)\Leftrightarrow(\exists X2.((v4\_card\_3 X2)\wedge((v2\_tops\_2 X2 X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))))\wedge(X1 = k5\_setfam\_1 (u1\_struct\_0 X0) X2)))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \quad (12)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(((v5\_topgen\_4 X1 X0)\wedge(v5\_topgen\_4 X2 X0))\Rightarrow(v5\_topgen\_4 (k9\_subset\_1 (u1\_struct\_0 X0) X1 X2) X0))))$$