

## t1\_topgen\_2

(TMMLT429TzpT4NX99M7RyhFVMHNaUS3bL7)

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  $v1\_tops\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_cantor\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $v1\_yellow\_8 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k8\_setfam\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow ((v1\_tops\_2 X1 X0) \Leftrightarrow (r1\_tarski X1 (u1\_pre\_topc X0)))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \Rightarrow ((X1 \in X0) \Rightarrow ((X1 \in k8\_setfam\_1 X0 X2) \Leftrightarrow (\forall X3.(X3 \in X2) \Rightarrow (X1 \in X3)))) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (3)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1.(((v1\_tops\_2 X1 X0) \wedge ((v1\_cantor\_1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((v3\_pre\_topc X2 X0) \Leftrightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\neg(X3 \in X2) \wedge (\forall X4.(m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\neg(X4 \in X1) \wedge ((X3 \in X4) \wedge (r1\_tarski X4 X2)))))))))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1)\Rightarrow((v1\_xboole\_0 X1)\vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow (X2 \in X1)) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1. \\ (m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 \\ (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))\Rightarrow((v1\_yellow\_8 \\ X2 X0 X1)\Leftrightarrow((X1 \in k8\_setfam\_1 (u1\_struct\_0 X0) X2)\wedge(\forall X3.( \\ m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\neg(v3\_pre\_topc \\ X3 X0)\wedge((X1 \in X3)\wedge(\forall X4.(m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0)))\Rightarrow(\neg(X4 \in X2)\wedge(r1\_tarski X4 X3)))))))))) \quad (9) \end{aligned}$$

### Theorem 1

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ X0)))\Rightarrow(\forall X1.((v1\_tops\_2 X1 X0)\wedge((v1\_cantor\_1 X1 X0)\wedge(m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))))\Rightarrow(\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow((v1\_tops\_2 (ReplSep (toset \\ (\lambda X3 : \iota.m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \\ (\lambda X3 : \iota.(X2 \in X3)\wedge(X3 \in X1)) (\lambda X3 : \iota.X3)) X0)\wedge((v1\_yellow\_8 \\ (ReplSep (toset (\lambda X3 : \iota.m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0)))) (\lambda X3 : \iota.(X2 \in X3)\wedge(X3 \in X1)) (\lambda X3 : \iota.X3)) X0 X2)\wedge \\ (m1\_subset\_1 (ReplSep (toset (\lambda X3 : \iota.m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0)))) (\lambda X3 : \iota.(X2 \in X3)\wedge(X3 \in X1)) (\lambda X3 : \iota. \\ X3)) (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \end{aligned}$$