

# t6\_topgen\_2 (TMHEKUnTjoMmcY- oWVtR5LmSwWQFJhUk9UZW)

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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  $v1\_frechet : \iota \Rightarrow o$  be given. Let  $r1\_ordinal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_topgen\_2 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_topgen\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_tops\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_yellow\_8 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v4\_card\_3 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (\forall X2. (X2 \in X0) \Rightarrow (r1\_tarski X2 X1)) \Rightarrow (r1\_tarski (k3\_tarski X0) X1) \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (r1\_ordinal1 (k1\_topgen\_2 X0 X1) (k2\_topgen\_2 X0))) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (k2\_topgen\_2 X0 = k3\_tarski (ReplSep (toset (\lambda X1 : \iota. m1\_subset\_1 X1 (u1\_struct\_0 X0))) (\lambda X1 : \iota. True) (\lambda X1 : \iota. k1\_topgen\_2 X0 X1))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski X0 X2) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. ((v3\_ordinal1 X0) \wedge (v3\_ordinal1 X1)) \Rightarrow (r1\_ordinal1 X0 X1) \Leftrightarrow (r1\_tarski X0 X1) \quad (5)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (6)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (v1\_card\_1 (k2\_topgen\_2 X0)) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (v1\_card\_1 (k1\_topgen\_2 X0 X1)) \quad (8)$$

Assume the following.

$$\forall X0. v1\_card\_1 (k1\_card\_1 X0) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow ((v1\_frechet X0) \Leftrightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\exists X2. \\ ((v1\_tops\_2 X2 X0) \wedge (v1\_yellow\_8 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \wedge (v4\_card\_3 X2)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (v1\_card\_1 X2) \Rightarrow \\ ((X2 = k1\_topgen\_2 X0 X1) \Leftrightarrow ((\exists X3. ((v1\_tops\_2 X3 X0) \wedge (v1\_yellow\_8 X3 X0 X1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \wedge (X2 = k1\_card\_1 X3)) \wedge (\forall X3. ((v1\_tops\_2 X3 X0) \wedge \\ ((v1\_yellow\_8 X3 X0 X1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \Rightarrow (r1\_ordinal1 X2 (k1\_card\_1 X3)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0. (v4\_card\_3 X0) \Leftrightarrow (r1\_ordinal1 (k1\_card\_1 X0) k4\_ordinal1) \quad (12)$$

Assume the following.

$$\forall X0. (v1\_card\_1 X0) \Rightarrow (v3\_ordinal1 X0) \quad (13)$$

**Theorem 1**

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow ((v1\_frechet X0) \Leftrightarrow (r1\_ordinal1 (k2\_topgen\_2 X0) k4\_ordinal1))$$