

t5\_msscyc\_1  
(TMd3fadp6Pah2ZX5n6WtEkvUZijCRoTjjgA)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_graph\_1 : \iota \Rightarrow o$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v7\_graph\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_graph\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $u2\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_graph\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_pre\_poly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m2\_graph\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k3\_pre\_poly : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_zfmisc\_1 : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $v13\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_funct\_1 : \iota \Rightarrow o$  be given. Let  $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l5\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X3)\wedge ((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\Rightarrow((X2 \in X0)\Rightarrow((X1 = k1\_xboole\_0)\vee(k1\_funct\_1 X3 X2 \in X1)))) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_graph\_1 X0))\Rightarrow(\forall X1.\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(((X2 = k1\_funct\_1 (u1\_graph\_1 X0) X1)\wedge(X3 = k1\_funct\_1 (u2\_graph\_1 X0) X1))\Rightarrow(r1\_graph\_2 X0 (k4\_pre\_poly (u1\_struct\_0 X0) X2 X3) (k9\_finseq\_1 X1)))))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1)))\Rightarrow((X1 = k9\_finseq\_1 X0)\Leftrightarrow((k3\_finseq\_1 X1 = np\_1)\wedge(k10\_xtuple\_0 X1 = k1\_tarski X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1)\Rightarrow(m1\_subset\_1 X0 X1) \quad (6)$$

Assume the following.

$$((v2\_xxreal\_0 np\_1)\wedge(m2\_subset\_1 np\_1 k1\_numbers k5\_numbers))\wedge ((m1\_subset\_1 np\_1 k5\_numbers)\wedge(m1\_subset\_1 np\_1 k1\_numbers)) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_graph\_1 X0))\Rightarrow(\forall X1.(m2\_graph\_1 X1 X0)\Leftrightarrow(m1\_graph\_1 X1 X0)) \quad (8)$$

Assume the following.

$$\forall X0.k9\_finseq\_1 X0 = k5\_finseq\_1 X0 \quad (9)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge(m1\_subset\_1 X1 X0))\Rightarrow (k3\_pre\_poly X0 X1 = k5\_finseq\_1 X1) \quad (11)$$

Assume the following.

$$\forall X0.\exists X1.(m1\_finseq\_1 X1 X0)\wedge((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 k5\_numbers)\wedge((v5\_relat\_1 X1 X0)\wedge((v1\_funct\_1 X1)\wedge((v1\_xboole\_0 X1)\wedge((v1\_finset\_1 X1)\wedge(v1\_finseq\_1 X1))))))) \quad (12)$$

Assume the following.

$$\forall X0.v1\_finseq\_1 (k5\_finseq\_1 X0) \quad (13)$$

Assume the following.

$$\forall X0.((\neg v7\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_zfmisc\_1 (u1\_struct\_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_xboole\_0 (k10\_xtuple\_0 X0)) \quad (15)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_card\_1 X0) \wedge ((v13\_struct\_0 X1 X0) \wedge (l1\_struct\_0 X1))) \Rightarrow (v3\_card\_1 (u1\_struct\_0 X1) X0) \quad (17)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v3\_funct\_1 X0))) \Rightarrow (v1\_zfmisc\_1 (k10\_xtuple\_0 X0)) \quad (18)$$

Assume the following.

$$\forall X0.(l1\_graph\_1 X0) \Rightarrow ((v1\_funct\_1 (u2\_graph\_1 X0)) \wedge ((v1\_funct\_2 (u2\_graph\_1 X0) (u4\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (u2\_graph\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u4\_struct\_0 X0) (u1\_struct\_0 X0)))))) \quad (19)$$

Assume the following.

$$\forall X0.(l1\_graph\_1 X0) \Rightarrow ((v1\_funct\_1 (u1\_graph\_1 X0)) \wedge ((v1\_funct\_2 (u1\_graph\_1 X0) (u4\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (u1\_graph\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u4\_struct\_0 X0) (u1\_struct\_0 X0)))))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 X1 X0) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 X0 X1) \Rightarrow (m2\_finseq\_1 X2 X0)) \quad (21)$$

Assume the following.

$$\forall X0.(l5\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (22)$$

Assume the following.

$$\forall X0.(l1\_graph\_1 X0) \Rightarrow (l5\_struct\_0 X0) \quad (23)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 (k9\_finseq\_1 X0)) \wedge (v1\_funct\_1 (k9\_finseq\_1 X0)) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0) \wedge ((m1\_subset\_1 X1 X0) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow (m2\_finseq\_2 (k4\_pre\_poly X0 X1 X2) X0 (k3\_finseq\_2 X0)) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow (m2\_finseq\_2 (k3\_pre\_poly X0 X1) X0 (k3\_finseq\_2 X0)) \quad (26)$$

Assume the following.

$$\forall X0.m1\_finseq\_2 (k3\_finseq\_2 X0) X0 \quad (27)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_graph\_1 X0)) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((m1\_graph\_1 X1 X0) \Leftrightarrow ((m2\_finseq\_1 X1 (u4\_struct\_0 X0)) \wedge (\exists X2.(m2\_finseq\_1 X2 (u1\_struct\_0 X0)) \wedge (r1\_graph\_2 X0 X2 X1)))))) \quad (28)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_graph\_1 X0)) \Rightarrow (\forall X1. (m2\_graph\_1 X1 X0) \Rightarrow ((v7\_graph\_1 X1 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 k5\_numbers) \Rightarrow ((r1\_xxreal\_0 np\_1 X2) \Rightarrow ((r1\_xxreal\_0 (k3\_finseq\_1 X1) X2) \vee (k1\_funct\_1 (u1\_graph\_1 X0) (k1\_funct\_1 X1 (k2\_nat\_1 X2 np\_1)) = k1\_funct\_1 (u2\_graph\_1 X0) (k1\_funct\_1 X1 X2))))))) \quad (29)$$

Assume the following.

$$\forall X0.(v3\_card\_1 X0 np\_1) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge (v1\_zfmisc\_1 X0)) \quad (30)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (31)$$

Assume the following.

$$\forall X0.((v1\_xboole\_0 X0) \wedge ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0))) \Rightarrow ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v3\_funct\_1 X0))) \quad (32)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_card\_1 X0) \quad (33)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_relat\_1 X0) \quad (34)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_funct\_1 X0) \quad (35)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v7\_struct\_0 X0)) \Rightarrow (v13\_struct\_0 X0 \text{ np\_1})) \quad (36)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_graph\_1 X0)) \Rightarrow (\forall X1. (X1 \in u4\_struct\_0 X0) \Rightarrow ((v7\_graph\_1 (k9\_finseq\_1 X1) X0) \wedge (m1\_graph\_1 (k9\_finseq\_1 X1) X0)))$$