

t4\_fsm\_3 (TM-  
FwvuZHYpQ33n8QxvHmgRAxeCe8USNzhyp)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_afinsq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_afinsq\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_flang\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k3\_catalan2 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_ordinal4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_afinsq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v5\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_0 : \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k3\_afinsq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $v4\_funct\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 X1 (k3\_catalan2 X0)) \Rightarrow (\forall X2. \\ & (v7\_ordinal1 X2) \Rightarrow (\neg(k1\_afinsq\_1 X1 = k2\_xcmplx\_0 X2 np\_1) \wedge (\forall X3. \\ & (m1\_subset\_1 X3 (k3\_catalan2 X0)) \Rightarrow (\forall X4. (m1\_subset\_1 X4 \\ & X0) \Rightarrow (\neg(k1\_afinsq\_1 X3 = X2) \wedge (X1 = k1\_ordinal4 X3 (k5\_afinsq\_1 X4))))))) \end{aligned} \quad (1)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v5\_ordinal1 X1) \wedge (( \\ & v1\_funct\_1 X1) \wedge (v1\_finset\_1 X1)))) \Rightarrow ((X1 = k5\_afinsq\_1 X0) \Leftrightarrow (( \\ & k1\_afinsq\_1 X1 = np\_1) \wedge (k1\_funct\_1 X1 k6\_numbers = X0))) \end{aligned} \quad (3)$$

Assume the following.

$$(m2\_subset\_1 np\_0 k1\_numbers k5\_numbers) \wedge ((m1\_subset\_1 np\_0 k5\_numbers) \wedge (m1\_subset\_1 np\_0 k1\_numbers)) \quad (4)$$

Assume the following.

$$v1\_xboole\_0 np\_0 \quad (5)$$

Assume the following.

$$k2\_xcmplx\_0 \ np\_0 \ np\_1 = np\_1 \quad (6)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (7)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (8)$$

Assume the following.

$$\forall X0.k5\_afinsq\_1 \ X0 = k3\_afinsq\_1 \ X0 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 \ X0) \wedge (m1\_subset\_1 \ X1 \ X0)) \Rightarrow (k3\_flang\_1 \ X0 \ X1 = k3\_afinsq\_1 \ X1) \quad (10)$$

Assume the following.

$$\forall X0.k3\_catalan2 \ X0 = k8\_afinsq\_1 \ X0 \quad (11)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 \ X0) \wedge ((v5\_ordinal1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_finset\_1 \ X0)))) \Rightarrow (k1\_afinsq\_1 \ X0 = k1\_card\_1 \ X0) \quad (12)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 \ X0) \wedge ((v5\_ordinal1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_finset\_1 \ X0)))) \Rightarrow (k1\_ordinal4 \ k1\_xboole\_0 \ X0 = X0) \quad (13)$$

Assume the following.

$$\forall X0.(v5\_ordinal1 \ (k3\_afinsq\_1 \ X0)) \wedge (v1\_finset\_1 \ (k3\_afinsq\_1 \ X0)) \quad (14)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 \ (k3\_afinsq\_1 \ X0)) \wedge (v1\_funct\_1 \ (k3\_afinsq\_1 \ X0)) \quad (15)$$

Assume the following.

$$v6\_membered \ k4\_ordinal1 \quad (16)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 \ X0) \Rightarrow ((\neg v1\_xboole\_0 \ (k1\_card\_1 \ X0)) \wedge (v1\_card\_1 \ (k1\_card\_1 \ X0))) \quad (17)$$

Assume the following.

$$\forall X0.v4\_funct\_1 (k8\_afinsq\_1 X0) \quad (18)$$

Assume the following.

$$\forall X0.(v4\_funct\_1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \quad (19)$$

Assume the following.

$$\forall X0.(v6\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v7\_ordinal1 X1)) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X1 (k8\_afinsq\_1 X0)) \Rightarrow ((v5\_ordinal1 X1) \wedge (v1\_finset\_1 X1)) \quad (21)$$

**Theorem 1**

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k8\_afinsq\_1 X0)) \Rightarrow (\neg(k1\_afinsq\_1 X1 = np\_1) \wedge (\forall X2.(m1\_subset\_1 X2 X0) \Rightarrow (\neg(k3\_flang\_1 X0 X2 = X1) \wedge (X2 = k1\_funct\_1 X1 k6\_numbers))))))$$