

t113\_finseq\_3 (TMGC-  
DuoiZNM8VwTBLctn7YDWcRE6Vk2QWNn)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k16\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ X1)))) \Rightarrow ((r1\_tarski X0 X1) \Rightarrow (r1\_xxreal\_0 (k3\_finseq\_1 X0) (k3\_finseq\_1 \\ X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge (( \\ v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1)))) \Rightarrow ((r1\_xxreal\_0 X0 (k3\_finseq\_1 \\ X1)) \Rightarrow (k3\_finseq\_1 (k16\_finseq\_1 X0 X1) = X0)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((r1\_tarski X0 X1) \Leftrightarrow ((r1\_tarski \\ (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1)) \wedge (\forall X2.(X2 \in k9\_xtuple\_0 \\ X0) \Rightarrow (k1\_funct\_1 X0 X2 = k1\_funct\_1 X1 X2)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ X1)))) \Rightarrow ((k3\_finseq\_1 X0 = k3\_finseq\_1 X1) \Leftrightarrow (k1\_relset\_1 k5\_numbers \\ X0 = k1\_relset\_1 k5\_numbers X1))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (\forall X1.(v7\_ordinal1 X1) \Rightarrow ((X1 \in k1\_relset\_1 k5\_numbers X0) \Leftrightarrow \\ & ((r1\_xxreal\_0 np\_1 X1) \wedge (r1\_xxreal\_0 X1 (k3\_finseq\_1 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ & X1))) \Rightarrow (((k4\_finseq\_1 X0 = k4\_finseq\_1 X1) \wedge (\forall X2.(v7\_ordinal1 \\ & X2) \Rightarrow ((X2 \in k4\_finseq\_1 X0) \Rightarrow (k1\_funct\_1 X0 X2 = k1\_funct\_1 X1 X2)))))) \Rightarrow \\ & (X0 = X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_finseq\_1 X2))) \Rightarrow ((r1\_xxreal\_0 \\ & X0 X1) \Rightarrow (k1\_funct\_1 (k16\_finseq\_1 X1 X2) X0 = k1\_funct\_1 X2 X0)))) \end{aligned} \quad (7)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (k4\_finseq\_1 X0 = k9\_xtuple\_0 X0) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (k3\_finseq\_1 X0 = k1\_card\_1 X0) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow ( \\ & k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_finset\_1 X0) \Rightarrow ((v1\_finset\_1 (k1\_card\_1 X0)) \wedge ( \\ & v1\_card\_1 (k1\_card\_1 X0))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.v1\_card\_1 (k1\_card\_1 X0) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v7\_ordinal1 X0) \wedge ((v1\_relat\_1 X1) \wedge ( \\ & v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((v1\_relat\_1 (k16\_finseq\_1 \\ & X0 X1)) \wedge ((v1\_funct\_1 (k16\_finseq\_1 X0 X1)) \wedge (v1\_finseq\_1 (k16\_finseq\_1 \\ & X0 X1)))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.((v3\_ordinal1\ X0)\wedge(v1\_finset\_1\ X0))\Rightarrow(v7\_ordinal1\ X0) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow \\ ((v1\_relat\_1\ X0)\wedge((v4\_relat\_1\ X0\ k5\_numbers)\wedge((v1\_funct\_1\ X0)\wedge \\ (v1\_finseq\_1\ X0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow \\ ((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finset\_1\ X0))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.(v1\_card\_1\ X0)\Rightarrow(v3\_ordinal1\ X0) \quad (18)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow \\ (\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1 \\ X1)))\Rightarrow((r1\_tarski\ X0\ X1)\Rightarrow(k16\_finseq\_1\ (k3\_finseq\_1\ X0)\ X1 = X0))) \end{aligned}$$