

t99\_finseq\_6 (TMYmgqCDLmN-  
rXp9aW4tRdQSSc6RHMGGrmpA)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_finseq\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_finseq\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_rfinseq : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k2\_finseq\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k8\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 X0) \Rightarrow \\ & (k1\_finseq\_6 X0 (k3\_finseq\_4 X0 X1 X2 X3) X1 = k3\_finseq\_4 X0 X1 X2 \\ & X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 X0) \Rightarrow \\ & (\neg (X1 \neq X2) \wedge ((X3 \neq X2) \wedge (k2\_finseq\_5 X0 (k3\_finseq\_4 X0 X1 X3 X2) X2 \neq \\ & k12\_finseq\_1 X0 X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 X0) \Rightarrow \\ & (\neg (X1 \neq X2) \wedge ((X3 \neq X2) \wedge (k1\_finseq\_5 X0 (k3\_finseq\_4 X0 X1 X3 X2) X2 \neq \\ & k3\_finseq\_4 X0 X1 X3 X2)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 X0) \Rightarrow \\ & (k2\_rfinseq X0 np\_1 (k3\_finseq\_4 X0 X1 X2 X3) = k2\_finseq\_4 X0 X2 \\ & X3)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(k11\_finseq\_1 X0 X1 X2 = k7\_finseq\_1 \\ & (k9\_finseq\_1 X0) (k10\_finseq\_1 X1 X2)) \wedge (k11\_finseq\_1 X0 X1 X2 = \\ & k7\_finseq\_1 (k10\_finseq\_1 X0 X1) (k9\_finseq\_1 X2)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (6)$$

Assume the following.

$$\forall X0.k9\_finseq\_1 X0 = k5\_finseq\_1 X0 \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_finseq\_1 X1 X0) \wedge (m1\_finseq\_1 \\ & X2 X0)) \Rightarrow (k8\_finseq\_1 X0 X1 X2 = k7\_finseq\_1 X1 X2) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge \\ & ((m1\_subset\_1 X1 X0) \wedge ((m1\_subset\_1 X2 X0) \wedge (m1\_subset\_1 X3 X0)))) \Rightarrow \\ & (k3\_finseq\_4 X0 X1 X2 X3 = k11\_finseq\_1 X1 X2 X3) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0) \wedge ((m1\_subset\_1 \\ & X1 X0) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow (k2\_finseq\_4 X0 X1 X2 = k10\_finseq\_1 \\ & X1 X2) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow \\ & (k12\_finseq\_1 X0 X1 = k5\_finseq\_1 X1) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k10\_xtuple\_0 (k11\_finseq\_1 \\ & X0 X1 X2) = k1\_enumset1 X0 X1 X2 \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & ((m1\_subset\_1 X1 X0)\wedge((m1\_subset\_1 X2 X0)\wedge(m1\_subset\_1 X3 X0))))\Rightarrow \\ & (m2\_finseq\_1 (k3\_finseq\_4 X0 X1 X2 X3) X0) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((m1\_subset\_1 \\ & X1 X0)\wedge(m1\_subset\_1 X2 X0)))\Rightarrow(m2\_finseq\_1 (k2\_finseq\_4 X0 X1 X2) \\ & X0) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge(m1\_subset\_1 X1 X0))\Rightarrow \\ & (m2\_finseq\_1 (k12\_finseq\_1 X0 X1) X0) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m2\_finseq\_1 X1 X0)\Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 X0)\Rightarrow(((X2 \in k10\_xtuple\_0 X1)\Rightarrow(k1\_finseq\_6 \\ & X0 X1 X2 = k8\_finseq\_1 X0 (k2\_finseq\_5 X0 X1 X2) (k2\_rfinseq X0 np\_1 \\ & (k1\_finseq\_5 X0 X1 X2))))\wedge((\neg X2 \in k10\_xtuple\_0 X1)\Rightarrow(k1\_finseq\_6 \\ & X0 X1 X2 = X1)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(X3 = k1\_enumset1 \\ & X0 X1 X2)\Leftrightarrow(\forall X4.(X4 \in X3)\Leftrightarrow(\neg(X4 \neq X0)\wedge((X4 \neq X1)\wedge(X4 \neq X2)))) \end{aligned} \quad (17)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 X0)\Rightarrow(\forall X3.(m1\_subset\_1 X3 X0)\Rightarrow \\ & ((X1 \neq X2)\Rightarrow(k1\_finseq\_6 X0 (k3\_finseq\_4 X0 X3 X1 X2) X2 = k3\_finseq\_4 \\ & X0 X2 X1 X2)))))) \end{aligned}$$