

# t32\_hallmar1 (TMGM- cid998RS4PwxYEBWiA6qdid9XsRguY9)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_hallmar1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_hallmar1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m4\_hallmar1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_relat\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0))) \Rightarrow (\neg (v1\_hallmar1 \\ & X1 X0) \wedge (\forall X2.(m4\_hallmar1 X2 X0 X1) \Rightarrow (\neg v1\_hallmar1 X2 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0))) \Rightarrow (\forall X2. \\ & \forall X3.(m2\_hallmar1 X3 X0 X1) \Rightarrow ((r1\_hallmar1 X0 X3 X2) \Rightarrow (r1\_hallmar1 \\ & X0 X1 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow ((\exists X2.r1\_hallmar1 X0 X1 X2) \Rightarrow (v1\_hallmar1 X1 X0))) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0))) \Rightarrow (\neg (\forall X2. \\ & (m1\_subset\_1 X2 k5\_numbers) \Rightarrow ((X2 \in k4\_finseq\_1 X1) \Rightarrow (k5\_card\_1 \\ & (k1\_funct\_1 X1 X2) = np\_1))) \wedge ((v1\_hallmar1 X1 X0) \wedge (\forall X2. \\ & \neg r1\_hallmar1 X0 X1 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Leftrightarrow(m1\_finseq\_1 X1 X0) \quad (5)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0)\Rightarrow(k5\_card\_1 X0 = k1\_card\_1 X0) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_finset\_1 X0)\wedge((m1\_finseq\_1 X1 (k1\_zfmisc\_1 X0))\wedge(m1\_subset\_1 X2 k5\_numbers)))\Rightarrow(v1\_finset\_1 (k1\_funct\_1 X1 X2)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge(m1\_finseq\_1 X1 (k1\_zfmisc\_1 X0)))\Rightarrow(\forall X2.(m4\_hallmar1 X2 X0 X1)\Rightarrow(m2\_hallmar1 X2 X0 X1)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(\forall X2.(m2\_hallmar1 X2 X0 X1)\Rightarrow(m2\_finseq\_1 X2 (k1\_zfmisc\_1 X0))) \quad (9)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow((v2\_relat\_1 X1)\Rightarrow(\forall X2.(m2\_hallmar1 X2 X0 X1)\Rightarrow((m4\_hallmar1 X2 X0 X1)\Leftrightarrow(\forall X3.(m1\_subset\_1 X3 k5\_numbers)\Rightarrow((X3 \in k4\_finseq\_1 X1)\Rightarrow(k1\_card\_1 (k1\_funct\_1 X2 X3) = np\_1))))))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(\forall X2.(m2\_finseq\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow((m2\_hallmar1 X2 X0 X1)\Leftrightarrow((k4\_finseq\_1 X2 = k4\_finseq\_1 X1)\wedge(\forall X3.(m1\_subset\_1 X3 k5\_numbers)\Rightarrow((X3 \in k4\_finseq\_1 X1)\Rightarrow(r1\_tarSKI (k1\_funct\_1 X2 X3) (k1\_funct\_1 X1 X3))))))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v1\_xboole\_0 X0)\wedge(v1\_finset\_1 X0))\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_finseq\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m4\_hallmar1 X2 X0 X1)\Rightarrow(\neg v1\_xboole\_0 X2)) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0)\Rightarrow(\forall X1.(m1\_finseq\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(((\neg v1\_xboole\_0 X1)\wedge(v1\_hallmar1 X1 X0))\Rightarrow((\neg v1\_xboole\_0 X1)\wedge(v2\_relat\_1 X1)))) \quad (13)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (m2\_finseq\_1 X1 (k1\_zfmisc\_1 X0))) \Rightarrow ((\exists X2. \\ & r1\_hallmar1 X0 X1 X2) \Leftrightarrow (v1\_hallmar1 X1 X0))) \end{aligned}$$