

t15\_hahnban1  
(TMXA8bSWDP7dj2CXHMLkhSMY5xN5Ddar7TG)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $u1\_struct\_0 : \iota \Rightarrow \iota$  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  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_hahnban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_hahnban1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k8\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (X1 \in X0) \Rightarrow (k1\_funct\_1 (k2\_funcop\_1 X0 X2) X1 = X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X2 X0)) \Rightarrow (k8\_funcop\_1 X0 X1 X2 = k2\_funcop\_1 X1 X2) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_boole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_boole\_0 (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0)\Rightarrow(m1\_subset\_1 (u2\_struct\_0 X0) (u1\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0)\Rightarrow((l2\_struct\_0 X0)\wedge(l1\_algstr\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0)\Rightarrow(\forall X1.(l1\_vectsp\_1 X1 X0)\Rightarrow (l2\_algstr\_0 X1)) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0)\Rightarrow(l1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(l2\_struct\_0 X0))\wedge \\ & (l1\_vectsp\_1 X1 X0))\Rightarrow((v1\_funct\_1 (k7\_hahnban1 X0 X1))\wedge((v1\_funct\_2 \\ & (k7\_hahnban1 X0 X1) (u1\_struct\_0 X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\ & (k7\_hahnban1 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X0)\wedge(l2\_algstr\_0 X0))\wedge(((\neg v2\_struct\_0 X1)\wedge(l1\_vectsp\_1 X1 X0))\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X0))))))\wedge((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 ( \\ & u1\_struct\_0 X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))))))\Rightarrow((v1\_funct\_1 \\ & (k3\_hahnban1 X0 X1 X2 X3))\wedge((v1\_funct\_2 (k3\_hahnban1 X0 X1 X2 X3) \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 (k3\_hahnban1 \\ & X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(m1\_subset\_1 ( \\ & k3\_funct\_2 X0 X1 X2 X3) X1) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l2\_struct\_0 X0))\Rightarrow(\forall X1. \\ & (l1\_vectsp\_1 X1 X0)\Rightarrow(k7\_hahnban1 X0 X1 = k8\_funcop\_1 (u1\_struct\_0 \\ & X0) (k2\_struct\_0 X1) (k4\_struct\_0 X0))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0)\Rightarrow(k4\_struct\_0 X0 = u2\_struct\_0 X0) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2\_algstr\_0 X0)\Rightarrow((v4\_rlvect\_1 X0)\Leftrightarrow(\forall X1.( \\ & m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(k1\_algstr\_0 X0 X1 (k4\_struct\_0 \\ & X0) = X1))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0)\Rightarrow(k2\_struct\_0 X0 = u1\_struct\_0 X0) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l2\_algstr\_0 X0))\Rightarrow(\forall X1. \\ & ((\neg v2\_struct\_0 X1)\wedge(l1\_vectsp\_1 X1 X0))\Rightarrow(\forall X2.((v1\_funct\_1 \\ & X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))\Rightarrow \\ & (\forall X3.((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))\Rightarrow(\forall X4.((v1\_funct\_1 \\ & X4)\wedge((v1\_funct\_2 X4 (u1\_struct\_0 X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))\Rightarrow \\ & ((X4 = k3\_hahnban1 X0 X1 X2 X3)\Leftrightarrow(\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 \\ & X1))\Rightarrow(k3\_funct\_2 (u1\_struct\_0 X1) (u1\_struct\_0 X0) X4 X5 = k1\_algstr\_0 \\ & X0 (k3\_funct\_2 (u1\_struct\_0 X1) (u1\_struct\_0 X0) X2 X5) (k3\_funct\_2 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0) X3 X5))))))))) \end{aligned} \quad (18)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l2\_algstr\_0 \\ & X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge(l1\_vectsp\_1 X1 X0))\Rightarrow( \\ & \forall X2.((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))\Rightarrow(r2\_relset\_1 (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X0) (k3\_hahnban1 X0 X1 X2 (k7\_hahnban1 X0 X1) X2))) \end{aligned}$$