

## t12\_hahnban1

(TMUw7PRpzySzLfqv9c8weRrW21QfjdmYY6s)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  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  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_hahnban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v2\_rlvect\_1 X0) \wedge (l1\_algstr\_0 \\ & X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)))) \Rightarrow (k3\_rlvect\_1 X0 X1 X2 = k1\_algstr\_0 X0 X1 X2) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.(l1\_vectsp\_1 X1 X0) \Rightarrow (l2\_algstr\_0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X0) \wedge (l2\_algstr\_0 X0)) \wedge (((\neg v2\_struct\_0 X1) \wedge (l1\_vectsp\_1 X1 X0)) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X0)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 ( \\ & u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))))) \Rightarrow ((v1\_funct\_1 \\ & (k3\_hahnban1 X0 X1 X2 X3)) \wedge ((v1\_funct\_2 (k3\_hahnban1 X0 X1 X2 X3) \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (k3\_hahnban1 \\ & X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0)) \Rightarrow (m1\_subset\_1 ( \\ & k3\_funct\_2 X0 X1 X2 X3) X1) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_vectsp\_1 X1 X0)) \Rightarrow (\forall X2.((v1\_funct\_1 \\ & X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0)))))) \Rightarrow \\ & (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0)))))) \Rightarrow (\forall X4.((v1\_funct\_1 \\ & X4) \wedge ((v1\_funct\_2 X4 (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0)))))) \Rightarrow \\ & ((X4 = k3\_hahnban1 X0 X1 X2 X3) \Leftrightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 \\ & X1)) \Rightarrow (k3\_funct\_2 (u1\_struct\_0 X1) (u1\_struct\_0 X0) X4 X5 = k1\_algstr\_0 \\ & X0 (k3\_funct\_2 (u1\_struct\_0 X1) (u1\_struct\_0 X0) X2 X5) (k3\_funct\_2 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0) X3 X5)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v2\_rlvect\_1 X0) \wedge (l1\_algstr\_0 \\ & X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)))) \Rightarrow (k3\_rlvect\_1 X0 X1 X2 = k3\_rlvect\_1 X0 X2 X1) \end{aligned} \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge (l2\_algstr\_0 \\ & X0))) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge (l1\_vectsp\_1 X1 X0))) \Rightarrow ( \\ & \forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0)))))) \Rightarrow (\forall X3. ((v1\_funct\_1 \\ & X3) \wedge ((v1\_funct\_2 X3 (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0)))))) \Rightarrow \\ & (r2\_relset\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0) (k3\_hahnban1 X0 \\ & X1 X2 X3) (k3\_hahnban1 X0 X1 X3 X2)))) \end{aligned}$$