

## t3\_hahnban

(TMKQoUyftT9wbQTGfM4FaEhLWUFmhyr8a3Fr)

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Let  $v2\_struct.0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr.0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $m1\_rlsub.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_rlsub.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $k4\_rlsub.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_domain.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_rlvect.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple.0 : \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple.0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_domain.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_domain.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct.0 : \iota \Rightarrow o$  be given. Let  $l2\_algstr.0 : \iota \Rightarrow o$  be given. Let  $l2\_struct.0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr.0 : \iota \Rightarrow o$  be given. Let  $r1\_struct.0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (k1\_xtuple.0 (k4\_tarski X0 X1) = X0) \wedge (k2\_xtuple.0 (k4\_tarski X0 X1) = X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1\_xboole.0 X0) \wedge ((\neg v1\_xboole.0 X1) \wedge (m1\_subset.1 X2 (k2\_zfmisc.1 X0 X1)))) \Rightarrow (k3\_domain.1 X0 X1 X2 = k2\_xtuple.0 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1\_xboole.0 X0) \wedge ((\neg v1\_xboole.0 X1) \wedge (m1\_subset.1 X2 (k2\_zfmisc.1 X0 X1)))) \Rightarrow (k2\_domain.1 X0 X1 X2 = k1\_xtuple.0 X2) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole.0 X0) \wedge ((\neg v1\_xboole.0 X1) \wedge ((m1\_subset.1 X2 X0) \wedge (m1\_subset.1 X3 X1)))) \Rightarrow (k1\_domain.1 X0 X1 X2 X3 = k4\_tarski X2 X3) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (7)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2\_struct\_0 \\ & X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge \\ & ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 \\ & X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 X0)))))))))) \wedge ((m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \wedge ((m1\_rlsub\_1 X2 X0) \wedge (m1\_rlsub\_1 X3 X0))) \Rightarrow \\ & (m1\_subset\_1 (k4\_rlsub\_2 X0 X1 X2 X3) (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\ & (\forall X2. (m1\_rlsub\_1 X2 X0) \Rightarrow (\forall X3. (m1\_rlsub\_1 X3 X0) \Rightarrow \\ & ((r1\_rlsub\_2 X0 X2 X3) \Rightarrow (\forall X4. (m1\_subset\_1 X4 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0))) \Rightarrow ((X4 = k4\_rlsub\_2 X0 X1 X2 X3) \Leftrightarrow \\ & ((X1 = k3\_rlvect\_1 X0 (k2\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) X4) (k3\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X4)) \wedge (( \\ & r1\_struct\_0 X2 (k2\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) \\ & X4)) \wedge (r1\_struct\_0 X3 (k3\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) X4)))))))))) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow ((r1\_rlsub\_2 X0 X1 X2) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5. \\ & (m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow ((k4\_rlsub\_2 X0 X3 X1 X2 = k1\_domain\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0) X4 X5) \Rightarrow (X3 = k3\_rlvect\_1 X0 X4 \\ & X5)))))))))) \end{aligned}$$