

t22\_bhsp\_3  
(TMUXH9Ahj3vpYtiKY4mLEzmfukjYQ3ohxw)

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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  $v2\_bhsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_bhsp\_1 : \iota \Rightarrow o$  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  $k5\_numbers : \iota$  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  $v3\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v2\_bhsp\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k8\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k1\_normsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  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  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $k3\_bhsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_membered : \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(v1\_xboole\_0 X0) \wedge ((X0 \neq X1) \wedge (v1\_xboole\_0 X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. (v1\_xreal\_0 X0) \Rightarrow (\forall X1. (v1\_xreal\_0 X1) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (v2\_xxreal\_0 X0)) \Rightarrow (v2\_xxreal\_0 X1))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow (r1\_xxreal\_0 X0 X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Leftrightarrow(m1\_subset\_1 X2 X1)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))))\wedge(v7\_ordinal1 X2))\Rightarrow(k8\_nat\_1 X0 X1 X2 = k1\_funct\_1 X1 X2) \quad (6)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (7)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\wedge(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0))))))\wedge(m1\_subset\_1 X2 k5\_numbers))))\Rightarrow(k1\_normsp\_1 X0 X1 X2 = k1\_funct\_1 X1 X2) \quad (9)$$

Assume the following.

$$\exists X0.(v1\_xboole\_0 X0)\wedge((v1\_xcmplx\_0 X0)\wedge((v1\_xxreal\_0 X0)\wedge(v1\_xreal\_0 X0))) \quad (10)$$

Assume the following.

$$\exists X0.(v1\_xcmplx\_0 X0)\wedge((v1\_xxreal\_0 X0)\wedge((v2\_xxreal\_0 X0)\wedge(v1\_xreal\_0 X0))) \quad (11)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1)\wedge(v3\_ordinal1 k4\_ordinal1) \quad (12)$$

Assume the following.

$$v3\_membered k1\_numbers \quad (13)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (14)$$

Assume the following.

$$v1\_xboole\_0 \ k1\_xboole\_0 \quad (15)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (16)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 \ X0) \Rightarrow ((l2\_struct\_0 \ X0) \wedge (l1\_algstr\_0 \ X0)) \quad (17)$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1 \ X0) \Rightarrow (l2\_algstr\_0 \ X0) \quad (18)$$

Assume the following.

$$\forall X0.(l1\_bhsp\_1 \ X0) \Rightarrow (l1\_rlvect\_1 \ X0) \quad (19)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 \ X0) \Rightarrow (l1\_struct\_0 \ X0) \quad (20)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 \ X0) \wedge ((v13\_algstr\_0 \ X0) \wedge \\ & ((v2\_rlvect\_1 \ X0) \wedge (v3\_rlvect\_1 \ X0) \wedge (v4\_rlvect\_1 \ X0) \wedge (v5\_rlvect\_1 \\ & X0) \wedge (v6\_rlvect\_1 \ X0) \wedge (v7\_rlvect\_1 \ X0) \wedge (v8\_rlvect\_1 \ X0) \wedge \\ & ((v2\_bhsp\_1 \ X0) \wedge (l1\_bhsp\_1 \ X0)))))) \wedge (m1\_subset\_1 \ X1 \ (u1\_struct\_0 \\ & X0))) \Rightarrow (m1\_subset\_1 \ (k3\_bhsp\_1 \ X0 \ X1) \ k1\_numbers) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((\neg v2\_struct\_0 \ X0) \wedge ((v13\_algstr\_0 \ X0) \wedge (v2\_rlvect\_1 \\ & X0) \wedge (v3\_rlvect\_1 \ X0) \wedge (v4\_rlvect\_1 \ X0) \wedge (v5\_rlvect\_1 \ X0) \wedge \\ & ((v6\_rlvect\_1 \ X0) \wedge (v7\_rlvect\_1 \ X0) \wedge (v8\_rlvect\_1 \ X0) \wedge ((v2\_bhsp\_1 \\ & X0) \wedge (l1\_bhsp\_1 \ X0)))))) \Rightarrow (\forall X1.((v1\_funct\_1 \ X1) \wedge \\ & ((v1\_funct\_2 \ X1 \ k5\_numbers \ (u1\_struct\_0 \ X0)) \wedge (m1\_subset\_1 \ X1 \\ & (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (u1\_struct\_0 \ X0)))))) \Rightarrow \\ & ((v2\_bhsp\_3 \ X1 \ X0) \Leftrightarrow (\exists X2.(m1\_subset\_1 \ X2 \ k1\_numbers) \wedge \\ & (\neg r1\_xreal\_0 \ X2 \ k6\_numbers) \wedge (\forall X3.(m2\_subset\_1 \ X3 \ k1\_numbers \\ & k5\_numbers) \Rightarrow (r1\_xreal\_0 \ (k3\_bhsp\_1 \ X0 \ (k1\_normsp\_1 \ X0 \ X1 \ X3)) \\ & X2)))))) \end{aligned} \quad (23)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 \ X0) \Leftrightarrow (X0 \in k1\_numbers) \quad (24)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ (v1\_funct\_2 X1 k5\_numbers X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ k5\_numbers X0)))) \Rightarrow ((v3\_funct\_1 X1) \Leftrightarrow (\exists X2.(m1\_subset\_1 \\ X2 X0) \wedge (\forall X3.(v7\_ordinal1 X3) \Rightarrow (k8\_nat\_1 X0 X1 X3 = X2)))))) \end{aligned} \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow (r1\_xxreal\_0 X0 X1) \vee (r1\_xxreal\_0 X1 X0) \quad (26)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (27)$$

Assume the following.

$$\forall X0.(v3\_membered X0) \Rightarrow (v2\_membered X0) \quad (28)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v3\_xxreal\_0 X0))) \quad (29)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xxreal\_0 X0) \quad (30)$$

Assume the following.

$$\forall X0.(v2\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v1\_xxreal\_0 X1)) \quad (31)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 \\ X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 \\ (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow \\ ((v3\_funct\_1 X1) \Rightarrow (v2\_bhsp\_3 X1 X0))) \end{aligned}$$