

t76\_fvsum\_1 (TMaUMQZUjJtrnLD-  
VGwY91gndVGBkFXxXvT4)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. 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  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_fvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_algstr\_1 : \iota \Rightarrow o$  be given. Let  $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_finsop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k3\_fvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v1\_algstr\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))) \Rightarrow (v1\_setwiseo (u1\_algstr\_0 X0) (u1\_struct\_0 X0)) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \Rightarrow (\forall X2.(v7\_ordinal1 \\ X2) \Rightarrow (\forall X3.(m2\_finseq\_2 X3 X0 (k4\_finseq\_2 X2 X0)) \Rightarrow (\forall X4. \\ (m2\_finseq\_2 X4 X0 (k4\_finseq\_2 X2 X0)) \Rightarrow (((v1\_binop\_1 X1 X0) \wedge ( \\ (v2\_binop\_1 X1 X0) \wedge (v1\_setwiseo X1 X0))) \Rightarrow (k5\_binop\_1 X0 X1 (k1\_finsop\_1 \\ X0 X3 X1) (k1\_finsop\_1 X0 X4 X1) = k1\_finsop\_1 X0 (k1\_finseqop X0 X0 \\ X0 X1 X3 X4) X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 X1 X0) \Rightarrow (\forall X2.(m2\_finseq\_2 \\ X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (4)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X0 \\ k5\_numbers) \wedge (((\neg v2\_struct\_0 X1) \wedge (l2\_algstr\_0 X1)) \wedge ((m1\_subset\_1 \\ X2 (k4\_finseq\_2 X0 (u1\_struct\_0 X1))) \wedge (m1\_subset\_1 X3 (k4\_finseq\_2 \\ X0 (u1\_struct\_0 X1)))))) \Rightarrow (k4\_fvsom\_1 X0 X1 X2 X3 = k3\_fvsom\_1 X1 \\ X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v2\_rlvect\_1 X0) \wedge (l1\_algstr\_0 \\ X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)))) \Rightarrow (k3\_rlvect\_1 X0 X1 X2 = k1\_algstr\_0 X0 X1 X2) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ (((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 X2) \wedge ( \\ ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (k2\_zfmisc\_1 X0 X1) X2) \wedge (m1\_subset\_1 \\ X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1) X2)))))) \wedge ((m1\_finseq\_1 \\ X4 X0) \wedge (m1\_finseq\_1 X5 X1)))))) \Rightarrow (k1\_finseqop X0 X1 X2 X3 X4 X5 = k3\_funcop\_1 \\ X3 X4 X5) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0))) \Rightarrow ((v1\_funct\_1 (u1\_algstr\_0 X0)) \wedge ((v1\_funct\_2 (u1\_algstr\_0 X0) (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)) \wedge (v2\_binop\_1 (u1\_algstr\_0 X0) (u1\_struct\_0 X0)))) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0))) \Rightarrow ((v1\_funct\_1 (u1\_algstr\_0 X0)) \wedge ((v1\_funct\_2 (u1\_algstr\_0 X0) (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)) \wedge (v1\_binop\_1 (u1\_algstr\_0 X0) (u1\_struct\_0 X0)))) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0) \Rightarrow ((v1\_funct\_1 (u1\_algstr\_0 X0)) \wedge ((v1\_funct\_2 (u1\_algstr\_0 X0) (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (u1\_algstr\_0 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)))))) \quad (12)$$

Assume the following.

$$\forall X0. \forall X1.(m1\_finseq\_2 X1 X0) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 X0 X1) \Rightarrow (m2\_finseq\_1 X2 X0)) \quad (13)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (15)$$

Assume the following.

$$\forall X0. \forall X1.(v7\_ordinal1 X0) \Rightarrow (m1\_finseq\_2 (k4\_finseq\_2 X0 X1) X1) \quad (16)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2.(((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \wedge ((m1\_finseq\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_finseq\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (m2\_finseq\_1 (k3\_fvsun\_1 X0 X1 X2) (u1\_struct\_0 X0)) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((m1\_finseq\_1 \\ & X1 X0)\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 X0) X0)\wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) \\ & X0))))))\Rightarrow(m1\_subset\_1 (k1\_finsop\_1 X0 X1 X2) X0) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v2\_rlvect\_1 \\ & X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l2\_algstr\_0 X0))))))\Rightarrow \\ & (\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0))\Rightarrow(k4\_rlvect\_1 X0 \\ & X1 = k1\_finsop\_1 (u1\_struct\_0 X0) X1 (u1\_algstr\_0 X0))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l2\_algstr\_0 X0))\Rightarrow(\forall X1. \\ & (m2\_finseq\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m2\_finseq\_1 X2 \\ & (u1\_struct\_0 X0))\Rightarrow(k3\_fvsum\_1 X0 X1 X2 = k1\_finseqop (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_algstr\_0 X0) X1 X2))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_algstr\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(k1\_algstr\_0 \\ & X0 X1 X2 = k5\_binop\_1 (u1\_struct\_0 X0) (u1\_algstr\_0 X0) X1 X2))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2\_algstr\_0 X0)\Rightarrow(((\neg v2\_struct\_0 X0)\wedge((v2\_rlvect\_1 \\ & X0)\wedge(v4\_rlvect\_1 X0)))\Rightarrow((\neg v2\_struct\_0 X0)\wedge(v1\_algstr\_1 X0))) \end{aligned} \quad (23)$$

### Theorem 1

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers)\Rightarrow(\forall X1.((\neg v2\_struct\_0 \\ & X1)\wedge((v13\_algstr\_0 X1)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge \\ & ((v4\_rlvect\_1 X1)\wedge(l2\_algstr\_0 X1))))))\Rightarrow(\forall X2.(m2\_finseq\_2 \\ & X2 (u1\_struct\_0 X1) (k4\_finseq\_2 X0 (u1\_struct\_0 X1)))\Rightarrow(\forall X3. \\ & (m2\_finseq\_2 X3 (u1\_struct\_0 X1) (k4\_finseq\_2 X0 (u1\_struct\_0 \\ & X1)))\Rightarrow(k4\_rlvect\_1 X1 (k4\_fvsum\_1 X0 X1 X2 X3) = k3\_rlvect\_1 X1 ( \\ & k4\_rlvect\_1 X1 X2) (k4\_rlvect\_1 X1 X3)))))) \end{aligned}$$