

# l18\_finsop\_1

(TMd14J1kwjxPG4oMupHW347J9KLFhiTLzap)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_finsop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ & X1))) \Rightarrow (((k10\_xtuple\_0 X0 = k10\_xtuple\_0 X1) \wedge ((v2\_funct\_1 X0) \wedge \\ & (v2\_funct\_1 X1))) \Rightarrow (k3\_finseq\_1 X0 = k3\_finseq\_1 X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Rightarrow ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_finseq\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_finseq\_1 X1 X0) \Rightarrow ((v1\_relat\_1 X1) \wedge ( \\ & (v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \end{aligned} \quad (4)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m2\_finseq\_1 X1 X0) \Rightarrow \\ & (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\ & X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0) X0)))))) \Rightarrow (((v1\_setwiseo X2 X0) \vee (r1\_xxreal\_0 np\_1 (k3\_finseq\_1 \\ & X1))) \Rightarrow (\forall X3. (m1\_subset\_1 X3 X0) \Rightarrow (((v1\_setwiseo X2 X0) \wedge \\ & (k3\_finseq\_1 X1 = k6\_numbers)) \Rightarrow ((X3 = k1\_finsop\_1 X0 X1 X2) \Leftrightarrow (X3 = \\ & k4\_binop\_1 X0 X2))) \wedge ((\neg (v1\_setwiseo X2 X0) \wedge (k3\_finseq\_1 X1 = k6\_numbers)) \Rightarrow \\ & ((X3 = k1\_finsop\_1 X0 X1 X2) \Leftrightarrow (\exists X4. ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 \\ & X4 k5\_numbers X0) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & X0)))))) \wedge ((k8\_nat\_1 X0 X4 np\_1 = k1\_funct\_1 X1 np\_1) \wedge ((\forall X5. \\ & (m1\_subset\_1 X5 k5\_numbers) \Rightarrow (\neg (k6\_numbers \neq X5) \wedge ((\neg r1\_xxreal\_0 \\ & (k3\_finseq\_1 X1) X5) \wedge (k8\_nat\_1 X0 X4 (k2\_nat\_1 X5 np\_1) \neq k1\_binop\_1 \\ & X2 (k8\_nat\_1 X0 X4 X5) (k1\_funct\_1 X1 (k2\_nat\_1 X5 np\_1)))))) \wedge ( \\ & X3 = k8\_nat\_1 X0 X4 (k3\_finseq\_1 X1)))))))))) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m2\_finseq\_1 X1 X0) \Rightarrow \\ & (\forall X2. (m2\_finseq\_1 X2 X0) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \Rightarrow (((k3\_finseq\_1 X1 = k6\_numbers) \wedge \\ & ((v1\_setwiseo X3 X0) \wedge ((v2\_funct\_1 X1) \wedge ((v2\_funct\_1 X2) \wedge (k10\_xtuple\_0 \\ & X1 = k10\_xtuple\_0 X2)))))) \Rightarrow (k1\_finsop\_1 X0 X1 X3 = k1\_finsop\_1 X0 \\ & X2 X3)))) \end{aligned}$$