

## t59\_finseqop

(TMKi5XS8XnUQCfLvgjR3ydkYsTVhcByNoqu)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finseqop : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \Rightarrow ((v1\_funct\_1 (k5\_finseqop \\ & X0 X1)) \wedge ((v1\_funct\_2 (k5\_finseqop X0 X1) X0 X0) \wedge (m1\_subset\_1 ( \\ & k5\_finseqop X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \Rightarrow (((v1\_setwiseo X1 X0) \wedge \\ & ((v2\_binop\_1 X1 X0) \wedge (v1\_finseqop X1 X0))) \Rightarrow (\forall X2. ((v1\_funct\_1 \\ & X2) \wedge ((v1\_funct\_2 X2 X0 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0)))))) \Rightarrow ((X2 = k5\_finseqop X0 X1) \Leftrightarrow (r1\_finseqop X0 X2 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 X0 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0)))))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 \\ & X0 X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0) X0)))))) \Rightarrow ((r1\_finseqop X0 X1 X2) \Leftrightarrow (\forall X3. (m1\_subset\_1 \\ & X3 X0) \Rightarrow ((k5\_binop\_1 X0 X2 X3 (k3\_funct\_2 X0 X0 X1 X3) = k4\_binop\_1 \\ & X0 X2) \wedge (k5\_binop\_1 X0 X2 (k3\_funct\_2 X0 X0 X1 X3) X3 = k4\_binop\_1 X0 \\ & X2)))))) \end{aligned} \quad (3)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\ & X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 X0) X0)))))) \Rightarrow (((v1\_setwiseo X2 X0) \wedge ((v2\_binop\_1 X2 X0) \wedge (v1\_finseqop \\ X2 X0))) \Rightarrow ((k5\_binop\_1 X0 X2 (k3\_funct\_2 X0 X0 (k5\_finseqop X0 X2) \\ X1) X1 = k4\_binop\_1 X0 X2) \wedge (k5\_binop\_1 X0 X2 X1 (k3\_funct\_2 X0 X0 ( \\ k5\_finseqop X0 X2) X1) = k4\_binop\_1 X0 X2)))))) \end{aligned}$$