

t69\_finseqop  
(TMTLDPkxofjKvLgX8F85ygia8ZmCZ5e2rfX)

October 27, 2020

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  $v2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finseqop : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r6\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 X0) \Rightarrow \\
& (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\
& X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X0) X0)))))) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 ( \\
& k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X0) X0)))))) \Rightarrow (((v2\_binop\_1 X2 X0) \wedge ((v1\_setwiseo \\
& X2 X0) \wedge ((v1\_finseqop X2 X0) \wedge ((r6\_binop\_1 X0 X3 X2) \wedge (X1 = k4\_binop\_1 \\
& X0 X2)))))) \Rightarrow (\forall X4. (m1\_subset\_1 X4 X0) \Rightarrow ((k5\_binop\_1 X0 X3 \\
& X1 X4 = X1) \wedge (k5\_binop\_1 X0 X3 X4 X1 = X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (\neg v1\_xboole\_0 X1) \Rightarrow \\
& (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\
& X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X0) X0)))))) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X1 \\
& X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))))) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 X0) \Rightarrow (\forall X5. (m1\_subset\_1 X5 X1) \Rightarrow (k3\_funct\_2 \\
& X1 X0 (k10\_funcop\_1 X0 X1 X2 X4 X3) X5 = k5\_binop\_1 X0 X2 X4 (k3\_funct\_2 \\
& X1 X0 X3 X5))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1)\Rightarrow((v1\_xboole\_0 X1)\vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1)\Rightarrow(k1\_funct\_1 (k4\_relat\_1 X1) X0 = X0) \quad (4)$$

Assume the following.

$$\forall X0.k6\_partfun1 X0 = k4\_relat\_1 X0 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 (k4\_relat\_1 X0))\wedge((v4\_relat\_1 (k4\_relat\_1 X0) X0)\wedge((v1\_funct\_1 (k4\_relat\_1 X0))\wedge(v1\_partfun1 (k4\_relat\_1 X0) X0))) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_partfun1 (k6\_partfun1 X0) X0)\wedge(m1\_subset\_1 (k6\_partfun1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))))\Rightarrow(m1\_subset\_1 (k4\_binop\_1 X0 X1) X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v1\_partfun1 X2 X0)\Rightarrow(v1\_funct\_2 X2 X0 X1)) \quad (10)$$

### Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))))\Rightarrow(\forall X3.((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))))\Rightarrow(((v2\_binop\_1 X2 X0)\wedge((v1\_setwiseo X2 X0)\wedge((v1\_finseqop X2 X0)\wedge(r6\_binop\_1 X0 X3 X2))))\Rightarrow(k3\_funct\_2 X0 X0 (k10\_funcop\_1 X0 X0 X3 X1 (k6\_partfun1 X0)) (k4\_binop\_1 X0 X2) = k4\_binop\_1 X0 X2)))))) \end{aligned}$$