

t22\_setwiseo  
(TMK18FuP4sP81o2W2gB97YiBo83KxiQaGxJ)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_finsub\_1 : \iota \Rightarrow \iota$  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  $v3\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k7\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k5\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (k2\_xboole\_0 (k1\_tarski X0) X1 = X1) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\ & X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X1 \\ & X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))))) \Rightarrow ((( \\ & v3\_binop\_1 X2 X0) \wedge ((v1\_binop\_1 X2 X0) \wedge (v2\_binop\_1 X2 X0))) \Rightarrow (\forall X4. \\ & (m1\_subset\_1 X4 (k5\_finsub\_1 X1)) \Rightarrow (\forall X5. (m1\_subset\_1 X5 \\ & (k5\_finsub\_1 X1)) \Rightarrow (\neg (X4 \neq k1\_xboole\_0) \wedge ((X5 \neq k1\_xboole\_0) \wedge ( \\ & k7\_setwiseo X1 X0 X2 (k5\_setwiseo X1 X4 X5) X3 \neq k5\_binop\_1 X0 X2 (k7\_setwiseo \\ & X1 X0 X2 X4 X3) (k7\_setwiseo X1 X0 X2 X5 X3)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\ & X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X1 \\ & X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))))) \Rightarrow ((( \\ & v1\_binop\_1 X2 X0) \wedge (v2\_binop\_1 X2 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 \\ & X4 X1) \Rightarrow (k7\_setwiseo X1 X0 X2 (k2\_setwiseo X1 X4) X3 = k3\_funct\_2 X1 \\ & X0 X3 X4)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k5\_finsub\_1 \\ & X0)) \wedge (m1\_subset\_1 X2 (k5\_finsub\_1 X0))) \Rightarrow (k5\_setwiseo X0 X1 X2 = \\ & k2\_xboole\_0 X1 X2) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow \\ & (k2\_setwiseo X0 X1 = k1\_tarski X1) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0 (k1\_tarski X0) \quad (7)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow \\ & (m1\_subset\_1 (k2\_setwiseo X0 X1) (k5\_finsub\_1 X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 \\ & X0) X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k5\_finsub\_1 X1)) \Rightarrow \\ & (\forall X4.((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 X1 X0) \wedge (m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))))) \Rightarrow (((v1\_binop\_1 X2 X0) \wedge \\ & ((v2\_binop\_1 X2 X0) \wedge (v3\_binop\_1 X2 X0))) \Rightarrow (\forall X5.(m1\_subset\_1 \\ & X5 X1) \Rightarrow ((X5 \in X3) \Rightarrow (k5\_binop\_1 X0 X2 (k3\_funct\_2 X1 X0 X4 X5) (k7\_setwiseo \\ & X1 X0 X2 X3 X4) = k7\_setwiseo X1 X0 X2 X3 X4))))))))) \end{aligned}$$