t59_setwiseo (TMZGzMwrcZYqPGbDP-waHUZ3TFo62zcZ29x6)

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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 $k5\_finsub\_1 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_setwiseo : \iota \Rightarrow \iota$ be given. Let $k5\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_setwiseo : \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4\_finsub\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0\ X1) \Rightarrow (\forall X2.\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X1\ X1)\ X1) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X1)\ X1))))) \Rightarrow (((v1\_binop\_1\ X3\ X1) \wedge ((v2\_binop\_1\ X3\ X1) \wedge ((v3\_binop\_1\ X3\ X1) \wedge (v1\_setwiseo\ X3\ X1)))) \Rightarrow (\forall X4.((v1\_funct\_1\ X4) \wedge ((v1\_funct\_2\ X4\ X0\ (k5\_finsub\_1\ X2)) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (k5\_finsub\_1\ X2)))))) \Rightarrow (\forall X5.((v1\_funct\_1\ X5) \wedge ((v1\_funct\_2\ X5\ (k5\_finsub\_1\ X2)\ X1) \wedge (m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X2)\ X1))))) \Rightarrow (((k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X1\ X5\ (k1\_setwiseo\ X2) = k4\_binop\_1\ X1\ X3) \wedge (\forall X6.(m1\_subset\_1\ X6\ (k5\_finsub\_1\ X2)) \Rightarrow (\forall X7.(m1\_subset\_1\ X7\ (k5\_finsub\_1\ X2)) \Rightarrow (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X1\ X5\ (k5\_setwiseo\ X2\ X6\ X7) = k5\_binop\_1\ X1\ X3\ (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X1\ X5\ X6)\ (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X1\ X5\ X7))))) \Rightarrow (\forall X6.(m1\_subset\_1\ X6\ (k5\_finsub\_1\ X0)) \Rightarrow (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X1\ X5\ (k10\_setwiseo\ X0\ X2\ X6\ X4) = k7\_setwiseo\ X0\ X1\ X3\ X6\ (k1\_partfun1\ X0\ (k5\_finsub\_1\ X2)\ (k5\_finsub\_1\ X2)\ X1\ X4\ X5)))))))))) \tag{1}$$

Assume the following.

$$\forall X0.k4\_binop\_1\ (k5\_finsub\_1\ X0)\ (k9\_setwiseo\ X0) = k1\_xboole\_0 \tag{2}$$

Assume the following.

$$\forall X0.v1\_setwiseo\ (k9\_setwiseo\ X0)\ (k5\_finsub\_1\ X0) \tag{3}$$

Assume the following.

$$\forall X0.v2\_binop\_1\ (k9\_setwiseo\ X0)\ (k5\_finsub\_1\ X0) \tag{4}$$

Assume the following.

$$\forall X0.v1\_binop\_1\ (k9\_setwiseo\ X0)\ (k5\_finsub\_1\ X0) \tag{5}$$

Assume the following.

$$\forall X0.v3\_binop\_1\ (k9\_setwiseo\ X0)\ (k5\_finsub\_1\ X0) \tag{6}$$

Assume the following.

$$\forall X0.k2\_xboole\_0\ X0\ k1\_xboole\_0 = X0 \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1\ X1\ (k5\_finsub\_1\ X0))\wedge(m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0)))\Rightarrow(k5\_setwiseo\ X0\ X1\ X2 = k2\_xboole\_0\ X1\ X2) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ X0)))\Rightarrow(k3\_funct\_2\ X0\ X1\ X2\ X3 = k1\_funct\_1\ X2\ X3) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.(((v1\_funct\_1\ X4)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\wedge((v1\_funct\_1\ X5)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3)))))\Rightarrow(k1\_partfun1\ X0\ X1\ X2\ X3\ X4\ X5 = k3\_relat\_1\ X4\ X5) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1\ X1\ (k5\_finsub\_1\ X0))\wedge(m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0)))\Rightarrow(k5\_setwiseo\ X0\ X1\ X1 = X1) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge((v1\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ X1\ X2)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X2)))))))\Rightarrow((v1\_funct\_1\ (k3\_relat\_1\ X3\ X4))\wedge(v1\_funct\_2\ (k3\_relat\_1\ X3\ X4)\ X0\ X2)) \tag{12}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ (k5\_finsub\_1\ X0))\wedge(v4\_finsub\_1\ (k5\_finsub\_1\ X0)) \tag{13}$$

Assume the following.

$$\forall X0.(v1\_funct\_1\ (k9\_setwiseo\ X0))\wedge((v1\_funct\_2\ (k9\_setwiseo\ X0)\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X0)\ (k5\_finsub\_1\ X0))\ (k5\_finsub\_1\ X0))\wedge(m1\_subset\_1\ (k9\_setwiseo\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X0)\ (k5\_finsub\_1\ X0))\ (k5\_finsub\_1\ X0))))) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1\ X1\ (k5\_finsub\_1\ X0))\wedge(m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0)))\Rightarrow(m1\_subset\_1\ (k5\_setwiseo\ X0\ X1\ X2)\ (k5\_finsub\_1\ X0)) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ X0)))\Rightarrow(m1\_subset\_1\ (k3\_funct\_2\ X0\ X1\ X2\ X3)\ X1) \tag{16}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ (k1\_setwiseo\ X0))\wedge(m1\_subset\_1\ (k1\_setwiseo\ X0)\ (k5\_finsub\_1\ X0)) \tag{17}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.(((v1\_funct\_1\ X4)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\wedge((v1\_funct\_1\ X5)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3)))))\Rightarrow((v1\_funct\_1\ (k1\_partfun1\ X0\ X1\ X2\ X3\ X4\ X5))\wedge(m1\_subset\_1\ (k1\_partfun1\ X0\ X1\ X2\ X3\ X4\ X5)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X3)))) \tag{18}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge ((m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0))\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ (k5\_finsub\_1\ X1))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (k5\_finsub\_1\ X1))))))))\Rightarrow(m1\_subset\_1\ (k10\_setwiseo\ X0\ X1\ X2\ X3)\ (k5\_finsub\_1\ X1)) \tag{19}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ (k5\_finsub\_1\ X1))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (k5\_finsub\_1\ X1))))))\Rightarrow(k10\_setwiseo\ X0\ X1\ X2\ X3 = k7\_setwiseo\ X0\ (k5\_finsub\_1\ X1)\ (k9\_setwiseo\ X1)\ X2\ X3))) \tag{20}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X0)\ (k5\_finsub\_1\ X0))\ (k5\_finsub\_1\ X0))\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X0)\ (k5\_finsub\_1\ X0))\ (k5\_finsub\_1\ X0))))))\Rightarrow((X1 = k9\_setwiseo\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (k5\_finsub\_1\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k5\_finsub\_1\ X0))\Rightarrow(k5\_binop\_1\ (k5\_finsub\_1\ X0)\ X1\ X2\ X3 = k5\_setwiseo\ X0\ X2\ X3)))) \tag{21}$$

Assume the following.

$$\forall X0.k1\_setwiseo\ X0 = k1\_xboole\_0 \tag{22}$$

Theorem 1

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.\forall X2.\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ (k5\_finsub\_1\ X1))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (k5\_finsub\_1\ X1))))))\Rightarrow(\forall X4.((v1\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2))\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2))))))\Rightarrow(((k3\_funct\_2\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2)\ X4\ (k1\_setwiseo\ X1) = k1\_setwiseo\ X2)\wedge(\forall X5.(m1\_subset\_1\ X5\ (k5\_finsub\_1\ X1))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k5\_finsub\_1\ X1))\Rightarrow(k3\_funct\_2\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2)\ X4\ (k5\_setwiseo\ X1\ X5\ X6) = k5\_setwiseo\ X2\ (k3\_funct\_2\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2)\ X4\ X5)\ (k3\_funct\_2\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2)\ X4\ X6)))))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (k5\_finsub\_1\ X0))\Rightarrow(k3\_funct\_2\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2)\ X4\ (k10\_setwiseo\ X0\ X1\ X5\ X3) = k10\_setwiseo\ X0\ X2\ X5\ (k1\_partfun1\ X0\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X1)\ (k5\_finsub\_1\ X2)\ X3\ X4))))))$$