t53_setwiseo (TMMLhxRRfFf6dJi6jkRzQt43tpAJ45ax7aQ)

October 27, 2020

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 $v1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k5\_finsub\_1 : \iota \Rightarrow \iota$ 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 $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k8\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_finsub\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0) \Rightarrow (X0 = k1\_xboole\_0) \tag{1}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0\ X1) \Rightarrow (\forall X2.\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0))))) \Rightarrow (((v1\_binop\_1\ X3\ X0) \wedge ((v2\_binop\_1\ X3\ X0) \wedge (v3\_binop\_1\ X3\ X0))) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k5\_finsub\_1\ X1)) \Rightarrow ((X4 \neq k1\_xboole\_0) \Rightarrow (\forall X5.((v1\_funct\_1\ X5) \wedge ((v1\_funct\_2\ X5\ X1\ (k5\_finsub\_1\ X2)) \wedge (m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ (k5\_finsub\_1\ X2)))))) \Rightarrow (\forall X6.((v1\_funct\_1\ X6) \wedge ((v1\_funct\_2\ X6\ (k5\_finsub\_1\ X2)\ X0) \wedge (m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_finsub\_1\ X2)\ X0))))) \Rightarrow ((\forall X7.(m1\_subset\_1\ X7\ (k5\_finsub\_1\ X2)) \Rightarrow (\forall X8.(m1\_subset\_1\ X8\ (k5\_finsub\_1\ X2)) \Rightarrow (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X0\ X6\ (k5\_setwiseo\ X2\ X7\ X8) = k5\_binop\_1\ X0\ X3\ (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X0\ X6\ X7)\ (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X0\ X6\ X8)))) \Rightarrow (k3\_funct\_2\ (k5\_finsub\_1\ X2)\ X0\ X6\ (k10\_setwiseo\ X1\ X2\ X4\ X5) = k7\_setwiseo\ X1\ X0\ X3\ X4\ (k1\_partfun1\ X1\ (k5\_finsub\_1\ X2)\ (k5\_finsub\_1\ X2)\ X0\ X5\ X6)))))))))) \tag{2}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ (k5\_finsub\_1\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ (k5\_finsub\_1\ X1))))))\Rightarrow(k10\_setwiseo\ X0\ X1\ (k1\_setwiseo\ X0)\ X2 = k1\_xboole\_0)) \tag{3}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(\neg v1\_xboole\_0\ X1)\Rightarrow(\forall X2.(\neg v1\_xboole\_0\ X2)\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X0\ X0)\ X0)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))\Rightarrow(((v3\_binop\_1\ X3\ X0)\wedge((v1\_binop\_1\ X3\ X0)\wedge((v2\_binop\_1\ X3\ X0)\wedge(v1\_setwiseo\ X3\ X0))))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (k5\_finsub\_1\ X1))\Rightarrow(\forall X5.((v1\_funct\_1\ X5)\wedge((v1\_funct\_2\ X5\ X1\ X2)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X2)))))\Rightarrow(\forall X6.((v1\_funct\_1\ X6)\wedge((v1\_funct\_2\ X6\ X2\ X0)\wedge(m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X0)))))\Rightarrow(k7\_setwiseo\ X2\ X0\ X3\ (k8\_setwiseo\ X1\ X2\ X5\ X4)\ X6 = k7\_setwiseo\ X1\ X0\ X3\ X4\ (k1\_partfun1\ X1\ X2\ X2\ X0\ X5\ X6))))))))) \tag{4}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(\neg v1\_xboole\_0\ X1)\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ X0)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))\Rightarrow(((v1\_binop\_1\ X2\ X0)\wedge((v2\_binop\_1\ X2\ X0)\wedge(v1\_setwiseo\ X2\ X0)))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X1\ X0)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0)))))\Rightarrow(k7\_setwiseo\ X1\ X0\ X2\ (k1\_setwiseo\ X1)\ X3 = k4\_binop\_1\ X0\ X2))))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ (k5\_finsub\_1\ X0)))))\Rightarrow(k8\_setwiseo\ X0\ X1\ X2\ X3 = k7\_relat\_1\ X2\ X3) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.v1\_relat\_1\ (k2\_zfmisc\_1\ X0\ X1) \tag{7}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ (k5\_finsub\_1\ X0))\wedge(v4\_finsub\_1\ (k5\_finsub\_1\ X0)) \tag{8}$$

Assume the following.

$$v1\_xboole\_0\ k1\_xboole\_0 \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X0)\wedge(v1\_xboole\_0\ X1))\Rightarrow(v1\_xboole\_0\ (k7\_relat\_1\ X0\ X1)) \tag{10}$$

Assume the following.

$$\forall X0.k1\_setwiseo\ X0 = k1\_xboole\_0 \tag{11}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(v1\_relat\_1\ X1)) \tag{12}$$

Theorem 1

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