

t40_setwiseo
(TMYg7rbpHDbVrcw7bpP9wCqiKMjcHczfMza)

October 27, 2020

Let $r3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $k1_setwiseo : \iota \Rightarrow \iota$ be given. Let $k9_setwiseo : \iota \Rightarrow \iota$ 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 $k3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k5_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\ & X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 X0) \Rightarrow ((v1_binop_1 X1 \\ & X0) \Rightarrow ((r3_binop_1 X0 X2 X1) \Leftrightarrow (\forall X3. (m1_subset_1 X3 X0) \Rightarrow (k3_binop_1 \\ & X0 X1 X2 X3 = X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. v1_binop_1 (k9_setwiseo X0) (k5_finsub_1 X0) \tag{2}$$

Assume the following.

$$\forall X0. k2_xboole_0 X0 k1_xboole_0 = X0 \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1_subset_1 X1 (k5_finsub_1 \\ & X0)) \wedge (m1_subset_1 X2 (k5_finsub_1 X0))) \Rightarrow (k5_setwiseo X0 X1 X2 = \\ & k2_xboole_0 X1 X2) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X2 X0) \wedge \\ & (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1)\wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge((m1_subset_1 X2 X0)\wedge \\ & (m1_subset_1 X3 X0)))\Rightarrow(k3_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_funct_1 (k9_setwiseo X0))\wedge((v1_funct_2 (k9_setwiseo \\ & X0) (k2_zfmisc_1 (k5_finsub_1 X0) (k5_finsub_1 X0)) (k5_finsub_1 \\ & X0))\wedge(m1_subset_1 (k9_setwiseo X0) (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 (k5_finsub_1 X0) (k5_finsub_1 X0)) (k5_finsub_1 \\ & X0)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(v1_xboole_0 (k1_setwiseo X0))\wedge(m1_subset_1 (k1_setwiseo X0) (k5_finsub_1 X0)) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 \\ & (k5_finsub_1 X0) (k5_finsub_1 X0)) (k5_finsub_1 X0))\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k5_finsub_1 X0) (k5_finsub_1 \\ & X0)) (k5_finsub_1 X0))))\Rightarrow((X1 = k9_setwiseo X0)\Leftrightarrow(\forall X2. \\ & (m1_subset_1 X2 (k5_finsub_1 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 \\ & (k5_finsub_1 X0))\Rightarrow(k5_binop_1 (k5_finsub_1 X0) X1 X2 X3 = k5_setwiseo \\ & X0 X2 X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$k1_xboole_0 = the (\lambda X0 : \iota.v1_xboole_0 X0) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 \\ & X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0))))\Rightarrow((v1_binop_1 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 X2 \\ & X0)\Rightarrow(\forall X3.(m1_subset_1 X3 X0)\Rightarrow(k3_binop_1 X0 X1 X2 X3 = k3_binop_1 \\ & X0 X1 X3 X2)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.k1_setwiseo X0 = k1_xboole_0 \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((m1_subset_1 X1 (k5_finsub_1 \\ & X0))\wedge(m1_subset_1 X2 (k5_finsub_1 X0)))\Rightarrow(k5_setwiseo X0 X1 X2 = \\ & k5_setwiseo X0 X2 X1) \end{aligned} \quad (13)$$

Theorem 1

$\forall X0.r3_binop_1 (k5_finsub_1 X0) (k1_setwiseo X0) (k9_setwiseo X0)$