

t48_setwiseo
(TMKCzWH5B5KoaymbmCdxWdtua2UxNtqr3ES)

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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 $k10_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_setwiseo : \iota \Rightarrow \iota$ be given. Let $v2_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_finsub_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.v1_setwiseo (k9_setwiseo X0) (k5_finsub_1 X0) \quad (1)$$

Assume the following.

$$\forall X0.v2_binop_1 (k9_setwiseo X0) (k5_finsub_1 X0) \quad (2)$$

Assume the following.

$$\forall X0.v1_binop_1 (k9_setwiseo X0) (k5_finsub_1 X0) \quad (3)$$

Assume the following.

$$\forall X0.v3_binop_1 (k9_setwiseo X0) (k5_finsub_1 X0) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 \\ & X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k5_finsub_1 X1)) \Rightarrow \\ & (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X1 X0) \wedge (m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \Rightarrow (((v3_binop_1 X2 X0) \wedge \\ & ((v1_binop_1 X2 X0) \wedge ((v2_binop_1 X2 X0) \wedge (v1_setwiseo X2 X0)))) \Rightarrow \\ & (\forall X5.(m1_subset_1 X5 X1) \Rightarrow (k7_setwiseo X1 X0 X2 (k5_setwiseo \\ & X1 X3 (k2_setwiseo X1 X5)) X4 = k5_binop_1 X0 X2 (k7_setwiseo X1 X0 \\ & X2 X3 X4) (k3_funct_2 X1 X0 X4 X5)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 (k5_finsub_1 X0)) \wedge (v4_finsub_1 (k5_finsub_1 X0)) \quad (6)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k5_finsub_1 \\ & X0)) \wedge (m1_subset_1 X2 (k5_finsub_1 X0))) \Rightarrow (m1_subset_1 (k5_setwiseo \\ & X0 X1 X2) (k5_finsub_1 X0)) \quad (8) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ & (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))))) \wedge (m1_subset_1 X3 X0))) \Rightarrow (m1_subset_1 (\\ & k3_funct_2 X0 X1 X2 X3) X1) \quad (9) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow \\ & (m1_subset_1 (k2_setwiseo X0 X1) (k5_finsub_1 X0)) \quad (10) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ & ((m1_subset_1 X2 (k5_finsub_1 X0)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 (k5_finsub_1 X1)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k5_finsub_1 X1)))))) \Rightarrow (m1_subset_1 (k10_setwiseo X0 X1 X2 \\ & X3) (k5_finsub_1 X1)) \quad (11) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.\forall X2.(m1_subset_1 \\ & X2 (k5_finsub_1 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 (k5_finsub_1 X1)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k5_finsub_1 X1)))))) \Rightarrow (k10_setwiseo X0 X1 X2 X3 = k7_setwiseo \\ & X0 (k5_finsub_1 X1) (k9_setwiseo X1) X2 X3))) \quad (12) \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\
& (k5_finsub_1 X0) (k5_finsub_1 X0)) (k5_finsub_1 X0)) \wedge (m1_subset_1 \\
& X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k5_finsub_1 X0) (k5_finsub_1 \\
& X0)) (k5_finsub_1 X0)))))) \Rightarrow ((X1 = k9_setwiseo X0) \Leftrightarrow (\forall X2. \\
& (m1_subset_1 X2 (k5_finsub_1 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\
& (k5_finsub_1 X0)) \Rightarrow (k5_binop_1 (k5_finsub_1 X0) X1 X2 X3 = k5_setwiseo \\
& X0 X2 X3)))) \\
& \tag{13}
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. \forall X2. ((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 X0 (k5_finsub_1 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 (k5_finsub_1 X1)))))) \Rightarrow (\forall X3. (m1_subset_1 \\
& X3 X0) \Rightarrow (\forall X4. (m1_subset_1 X4 (k5_finsub_1 X0)) \Rightarrow (k10_setwiseo \\
& X0 X1 (k5_setwiseo X0 X4 (k2_setwiseo X0 X3)) X2 = k5_setwiseo X1 (\\
& k10_setwiseo X0 X1 X4 X2) (k3_funct_2 X0 (k5_finsub_1 X1) X2 X3))))))
\end{aligned}$$