

t36_setwiseo

(TMK58kT9Mm4iQtR2uCWpCiCy4NiKbZEdXMMv)

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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 $v1_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $k7_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_setwiseo : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (\neg v1_xboole_0 X1) \Rightarrow \\
 & (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 \\
 & X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
 & X0 X0) X0)))))) \Rightarrow (((v1_binop_1 X2 X0) \wedge ((v2_binop_1 X2 X0) \wedge (v1_setwiseo \\
 & X2 X0))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge \\
 & (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \Rightarrow (k7_setwiseo \\
 & X1 X0 X2 (k1_setwiseo X1) X3 = k4_binop_1 X0 X2))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X1 \\
& X1) X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X1 X1) X1)))))) \Rightarrow (((v1_binop_1 X2 X1) \wedge ((v2_binop_1 X2 X1) \wedge (v3_binop_1 \\
& X2 X1))) \Rightarrow (\forall X3.(\neg v1_xboole_0 X3) \Rightarrow (\forall X4.((v1_funct_1 \\
& X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 X3 X3) X3) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X3 X3) X3)))))) \Rightarrow (((v1_binop_1 X4 X3) \wedge \\
& ((v2_binop_1 X4 X3) \wedge (v3_binop_1 X4 X3))) \Rightarrow (\forall X5.((v1_funct_1 \\
& X5) \wedge ((v1_funct_2 X5 X0 X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \Rightarrow (\forall X6.((v1_funct_1 X6) \wedge ((v1_funct_2 X6 X1 X3) \wedge \\
& (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 X1 X3)))))) \Rightarrow ((\forall X7. \\
& (m1_subset_1 X7 X1) \Rightarrow (\forall X8.(m1_subset_1 X8 X1) \Rightarrow (k3_funct_2 \\
& X1 X3 X6 (k5_binop_1 X1 X2 X7 X8) = k5_binop_1 X3 X4 (k3_funct_2 X1 X3 \\
& X6 X7) (k3_funct_2 X1 X3 X6 X8)))) \Rightarrow (\forall X7.(m1_subset_1 X7 (\\
& k5_finsub_1 X0) \Rightarrow ((X7 \neq k1_xboole_0) \Rightarrow (k3_funct_2 X1 X3 X6 (k7_setwiseo \\
& X0 X1 X2 X7 X5) = k7_setwiseo X0 X3 X4 X7 (k1_partfun1 X0 X1 X1 X3 X5 X6))))))))) \\
& (2)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X2 X3)))))) \Rightarrow (k1_partfun1 X0 X1 X2 X3 X4 X5 = k3_relat_1 X4 X5) \\
& (3)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\
& X1) \wedge (((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 X3 \\
& (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \wedge ((v1_funct_1 X4) \wedge ((v1_funct_2 \\
& X4 X1 X2) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X2)))))) \Rightarrow \\
& ((v1_funct_1 (k3_relat_1 X3 X4) \wedge (v1_funct_2 (k3_relat_1 X3 X4) \\
& X0 X2)) \\
& (4)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X2 X3)))))) \Rightarrow ((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5) \wedge (m1_subset_1 \\
& (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3)))) \\
& (5)
\end{aligned}$$

Assume the following.

$$\forall X0.k1_setwiseo X0 = k1_xboole_0 \quad (6)$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X1 \\
& X1) X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X1 X1) X1)))))) \Rightarrow (((v1_binop_1 X2 X1) \wedge ((v2_binop_1 X2 X1) \wedge ((v3_binop_1 \\
& X2 X1) \wedge (v1_setwiseo X2 X1)))))) \Rightarrow (\forall X3.(\neg v1_xboole_0 X3) \Rightarrow \\
& (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 X3 \\
& X3) X3) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X3 X3) X3)))))) \Rightarrow (((v1_binop_1 X4 X3) \wedge ((v2_binop_1 X4 X3) \wedge ((v3_binop_1 \\
& X4 X3) \wedge (v1_setwiseo X4 X3)))))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge (\\
& (v1_funct_2 X5 X0 X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \Rightarrow (\forall X6.((v1_funct_1 X6) \wedge ((v1_funct_2 X6 X1 X3) \wedge \\
& (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 X1 X3)))))) \Rightarrow (((k3_funct_2 \\
& X1 X3 X6 (k4_binop_1 X1 X2) = k4_binop_1 X3 X4) \wedge (\forall X7.(m1_subset_1 \\
& X7 X1) \Rightarrow (\forall X8.(m1_subset_1 X8 X1) \Rightarrow (k3_funct_2 X1 X3 X6 (k5_binop_1 \\
& X1 X2 X7 X8) = k5_binop_1 X3 X4 (k3_funct_2 X1 X3 X6 X7) (k3_funct_2 \\
& X1 X3 X6 X8)))))) \Rightarrow (\forall X7.(m1_subset_1 X7 (k5_finsub_1 X0)) \Rightarrow \\
& (k3_funct_2 X1 X3 X6 (k7_setwiseo X0 X1 X2 X7 X5) = k7_setwiseo X0 X3 \\
& X4 X7 (k1_partfun1 X0 X1 X1 X3 X5 X6)))))))))
\end{aligned}$$