

t17_setwiseo
(TMRSckV57J9nGKjnpFPvEUbvnxuY5k2aLsP)

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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 $k7_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $v4_finsub_1 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ & (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))))) \wedge (m1_subset_1 X3 X0))) \Rightarrow (k3_funct_2 X0 \\ & X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow \\ & (k2_setwiseo X0 X1 = k1_tarski X1) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \neg v1_xboole_0 (k1_tarski X0) \tag{3}$$

Assume the following.

$$\forall X0. (\neg v1_xboole_0 (k5_finsub_1 X0)) \wedge (v4_finsub_1 (k5_finsub_1 X0)) \tag{4}$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1_xboole_0 \\ & X0) \wedge ((\neg v1_xboole_0 X1) \wedge (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 \\ & X1 X1) X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X1 X1) X1)))))) \wedge ((m1_subset_1 X3 (k5_finsub_1 X0)) \wedge ((v1_funct_1 \\ & X4) \wedge ((v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))))))) \Rightarrow (m1_subset_1 (k7_setwiseo X0 X1 X2 X3 X4) X1) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow \\ & (m1_subset_1 (k2_setwiseo X0 X1) (k5_finsub_1 X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X1 \\ & X1) X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X1 X1) X1)))))) \Rightarrow (\forall X3. (m1_subset_1 X3 (k5_finsub_1 X0)) \Rightarrow \\ & (\forall X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow (((v1_binop_1 X2 X1) \wedge \\ & (v2_binop_1 X2 X1)) \Rightarrow (((X3 = k1_xboole_0) \wedge (\neg v1_setwiseo X2 X1)) \vee \\ & (\forall X5. (m1_subset_1 X5 X1) \Rightarrow ((X5 = k7_setwiseo X0 X1 X2 X3 X4) \Leftrightarrow \\ & (\exists X6. ((v1_funct_1 X6) \wedge ((v1_funct_2 X6 (k5_finsub_1 X0) \\ & X1) \wedge (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 (k5_finsub_1 X0) \\ & X1)))))) \wedge ((X5 = k3_funct_2 (k5_finsub_1 X0) X1 X6 X3) \wedge ((\forall X7. \\ & (m1_subset_1 X7 X1) \Rightarrow ((r3_binop_1 X1 X7 X2) \Rightarrow (k1_funct_1 X6 k1_xboole_0 = \\ & X7))) \wedge ((\forall X7. (m1_subset_1 X7 X0) \Rightarrow (k1_funct_1 X6 (k1_tarski \\ & X7) = k3_funct_2 X0 X1 X4 X7)) \wedge (\forall X7. (m1_subset_1 X7 (k5_finsub_1 \\ & X0)) \Rightarrow ((r1_tarski X7 X3) \Rightarrow ((X7 = k1_xboole_0) \vee (\forall X8. (m1_subset_1 \\ & X8 X0) \Rightarrow ((X8 \in k6_setwiseo X0 X3 X7) \Rightarrow (k1_funct_1 X6 (k2_xboole_0 \\ & X7 (k1_tarski X8)) = k5_binop_1 X1 X2 (k3_funct_2 (k5_finsub_1 X0) \\ & X1 X6 X7) (k3_funct_2 X0 X1 X4 X8))))))))))))))))) \end{aligned} \quad (8)$$

Theorem 1

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