

t8_filter_1

(TMYcagV5eZ3LqHfm9fhmkKk52hsTzybwpXY)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ 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 $m2_filter_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_filter_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ 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 $m1_eqrel_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_partfun1 X1 X0) \wedge \\ & ((v3_relat_2 X1) \wedge ((v8_relat_2 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 X0) \Rightarrow (\forall X3. \\ & (m2_filter_1 X3 X0 X1) \Rightarrow ((r2_binop_1 X0 X2 X3) \Rightarrow (r2_binop_1 (k8_eqrel_1 \\ & X0 X1) (k9_eqrel_1 X0 X1 X2) (k3_filter_1 X0 X1 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_partfun1 X1 X0) \wedge \\ & ((v3_relat_2 X1) \wedge ((v8_relat_2 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 X0) \Rightarrow (\forall X3. \\ & (m2_filter_1 X3 X0 X1) \Rightarrow ((r1_binop_1 X0 X2 X3) \Rightarrow (r1_binop_1 (k8_eqrel_1 \\ & X0 X1) (k9_eqrel_1 X0 X1 X2) (k3_filter_1 X0 X1 X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v3_relat_2 \\ & X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0))))))\wedge(m1_subset_1 X2 X0)))\Rightarrow(k9_eqrel_1 X0 \\ & X1 X2 = k9_relat_1 X1 X2) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(v1_relat_1 X1))\Rightarrow(\\ & \forall X2.(m2_filter_1 X2 X0 X1)\Rightarrow((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(m1_eqrel_1 X1 X0)\Rightarrow(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 X0))) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v3_relat_2 \\ & X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0))))))\wedge(m1_subset_1 X2 X0)))\Rightarrow(m2_subset_1 \\ & (k9_eqrel_1 X0 X1 X2) (k1_zfmisc_1 X0) (k8_eqrel_1 X0 X1)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 \\ & X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\ & (m1_eqrel_1 (k8_eqrel_1 X0 X1) X0) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_partfun1 \\ & X1 X0)\wedge((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 \\ & X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0))))))\Rightarrow((v1_funct_1 (k3_filter_1 X0 X1 X2))\wedge((v1_funct_2 \\ & (k3_filter_1 X0 X1 X2) (k2_zfmisc_1 (k8_eqrel_1 X0 X1) (k8_eqrel_1 \\ & X0 X1)) (k8_eqrel_1 X0 X1))\wedge(m1_subset_1 (k3_filter_1 X0 X1 X2) \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k8_eqrel_1 X0 X1) (k8_eqrel_1 \\ & X0 X1)) (k8_eqrel_1 X0 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1_subset_1 X1 X0)\Rightarrow(\forall X2.((v1_funct_1 \\ & X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))))\Rightarrow((r3_binop_1 X0 X1 X2)\Leftrightarrow \\ & ((r1_binop_1 X0 X1 X2)\wedge(r2_binop_1 X0 X1 X2))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (12)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_eqrel_1 X1 X0) \Rightarrow (\neg v1_xboole_0 X1)) \quad (13)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_partfun1 X1 X0) \wedge \\ & ((v3_relat_2 X1) \wedge ((v8_relat_2 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))) \Rightarrow (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (\forall X3. \\ & (m2_filter_1 X3 X0 X1) \Rightarrow ((r3_binop_1 X0 X2 X3) \Rightarrow (r3_binop_1 (k8_eqrel_1 \\ & X0 X1) (k9_eqrel_1 X0 X1 X2) (k3_filter_1 X0 X1 X3)))))) \end{aligned}$$