

t16_bvfunc_9

(TMc4GZtRLDR8NGnrX1nWAVVMeEGc59HenMT)

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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 $k6_margrel1 : \iota$ 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 $r1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\ & (k9_bvfunc_1 X0 X1 X2) (k5_bvfunc_1 X0 (k1_bvfunc_1 X0 X1) X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge \\ & ((v1_funct_2 X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r1_bvfunc_1 X0 (k2_bvfunc_1 \\ & X0 (k5_bvfunc_1 X0 X1 X2) (k9_bvfunc_1 X0 X2 X3)) (k5_bvfunc_1 X0 \\ & X1 X3)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1))))))\Rightarrow((v1_funct_1 (k9_bvf_func_1 X0 X1 X2))\wedge(\\ & (v1_funct_2 (k9_bvf_func_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ & (k9_bvf_func_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1))))))\Rightarrow((v1_funct_1 (k5_bvf_func_1 X0 X1 X2))\wedge(\\ & (v1_funct_2 (k5_bvf_func_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ & (k5_bvf_func_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge(\\ & (v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow((v1_funct_1 (k1_bvf_func_1 \\ & X0 X1))\wedge((v1_funct_2 (k1_bvf_func_1 X0 X1) X0 k6_margrel1)\wedge(m1_subset_1 \\ & (k1_bvf_func_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1))))))\Rightarrow(k5_bvf_func_1 X0 X1 X2 = k5_bvf_func_1 X0 X2 \\ & X1) \end{aligned} \quad (7)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge(\\ & (v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(\forall X2.((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge \\ & ((v1_funct_2 X3 X0 k6_margrel1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(r1_bvf_func_1 X0 (k2_bvf_func_1 \\ & X0 (k9_bvf_func_1 X0 X1 X2) (k9_bvf_func_1 X0 (k1_bvf_func_1 X0 X1) X3)) \\ & (k5_bvf_func_1 X0 X2 X3)))) \end{aligned}$$