

t30_bvfunc11 (TM- TuYkETVgs7NJdwTApzzjQKZusuFxbvQ7Xo)

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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 $k1_bvfunc_2 : \iota \Rightarrow \iota$ be given. Let $m1_eqrel_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ (k1_zfmisc_1 (k1_bvfunc_2 X0))) \Rightarrow (\forall X3. (m1_eqrel_1 X3 X0) \Rightarrow \\ (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow ((v2_bvfunc_2 X2 X0) \Rightarrow (r1_bvfunc_1 \\ X0 (k7_bvfunc_2 X0 (k6_bvfunc_2 X0 X1 X2 X3) X2 X4) (k7_bvfunc_2 X0 \\ (k6_bvfunc_2 X0 X1 X2 X3) X2 X4)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ (k1_zfmisc_1 (k1_bvfunc_2 X0))) \Rightarrow (\forall X3. (m1_eqrel_1 X3 X0) \Rightarrow \\ (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow (r2_funct_2 X0 k6_margrel1 (k1_bvfunc_1 \\ X0 (k6_bvfunc_2 X0 (k6_bvfunc_2 X0 X1 X2 X3) X2 X4) (k7_bvfunc_2 \\ X0 (k7_bvfunc_2 X0 (k1_bvfunc_1 X0 X1) X2 X3) X2 X4)))))) \end{aligned} \quad (2)$$

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.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge(v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(k1_bvfunc_1 X0 (k1_bvfunc_1 X0 X1) = X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((m1_subset_1 X2 (k1_zfmisc_1 (k1_bvfunc_2 X0)))\wedge(m1_eqrel_1 X3 X0))))\Rightarrow((v1_funct_1 (k7_bvfunc_2 X0 X1 X2 X3))\wedge((v1_funct_2 (k7_bvfunc_2 X0 X1 X2 X3) X0 k6_margrel1)\wedge(m1_subset_1 (k7_bvfunc_2 X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((m1_subset_1 X2 (k1_zfmisc_1 (k1_bvfunc_2 X0)))\wedge(m1_eqrel_1 X3 X0))))\Rightarrow((v1_funct_1 (k6_bvfunc_2 X0 X1 X2 X3))\wedge((v1_funct_2 (k6_bvfunc_2 X0 X1 X2 X3) X0 k6_margrel1)\wedge(m1_subset_1 (k6_bvfunc_2 X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge(v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow((v1_funct_1 (k1_bvfunc_1 X0 X1))\wedge((v1_funct_2 (k1_bvfunc_1 X0 X1) X0 k6_margrel1)\wedge(m1_subset_1 (k1_bvfunc_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \quad (7)$$

Theorem 1

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k1_bvfunc_2 X0)))\Rightarrow(\forall X3.(m1_eqrel_1 X3 X0)\Rightarrow(\forall X4.(m1_eqrel_1 X4 X0)\Rightarrow((v2_bvfunc_2 X2 X0)\Rightarrow(r1_bvfunc_1 X0 (k7_bvfunc_2 X0 (k6_bvfunc_2 X0 (k1_bvfunc_1 X0 X1) X2 X3) X2 X4) (k1_bvfunc_1 X0 (k6_bvfunc_2 X0 (k6_bvfunc_2 X0 X1 X2 X4) X2 X3))))))))))$$