

t59_bvfunc11

(TMK5VSFP6F4D6Poz63JrsPdkFH29hzWZcwi)

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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 $k7_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_partit1 : \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ & (k1_zfmisc_1 (k1_bvfunc_2 X0))) \Rightarrow (\forall X3. (m1_eqrel_1 X3 X0) \Rightarrow \\ & (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow ((v2_bvfunc_2 X2 X0) \Rightarrow (r1_bvfunc_1 \\ & X0 (k7_bvfunc_2 X0 (k1_bvfunc_1 X0 (k7_bvfunc_2 X0 X1 X2 X3)) X2 X4) \\ & (k1_bvfunc_1 X0 (k7_bvfunc_2 X0 (k6_bvfunc_2 X0 X1 X2 X4) X2 X3))))))))) \\ & \tag{1} \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k1_partit1 X0))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow (\forall X3. (m1_eqrel_1 X3 X0) \Rightarrow (r2_funct_2 \\ & X0 k6_margrel1 (k1_bvfunc_1 X0 (k7_bvfunc_2 X0 X2 X1 X3)) (k6_bvfunc_2 \\ & X0 (k1_bvfunc_1 X0 X2) X1 X3)))))) \\ & \tag{2} \end{aligned}$$

Assume the following.

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

Assume the following.

$$\forall X0.k1_bvfunc_2 X0 = k1_partit1 X0 \quad (4)$$

Assume the following.

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

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((v1_funct_1 (k1_bvfunc_1 \\ & X0 X1)) \wedge ((v1_funct_2 (k1_bvfunc_1 X0 X1) X0 k6_margrel1) \wedge (m1_subset_1 \\ & (k1_bvfunc_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (7)$$

Theorem 1

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