# t19_bvfunc_2 (TMKJ6uQuUyveasS6J2Wjp9vmBfFBrspyH59)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k1\_partit1 : \iota \Rightarrow \iota$ 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 $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1\_bvfunc\_2 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k1\_partit1\ X0))) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ X0\ k6\_margrel1) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1))))) \Rightarrow (\forall X3.(m1\_eqrel\_1\ X3\ X0) \Rightarrow (r2\_funct\_2\ X0\ k6\_margrel1\ (k1\_bvfunc\_1\ X0\ (k6\_bvfunc\_2\ X0\ X2\ X1\ X3))\ (k7\_bvfunc\_2\ X0\ (k1\_bvfunc\_1\ X0\ X2)\ X1\ X3))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ X0\ X1) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))) \wedge ((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ X0\ X1) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))) \Rightarrow ((r2\_funct\_2\ X0\ X1\ X2\ X3) \Leftrightarrow (X2 = X3)) \tag{2}$$

Assume the following.

$$\forall X0.k1\_bvfunc\_2\ X0 = k1\_partit1\ X0 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge ((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ X0\ k6\_margrel1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1)))))) \Rightarrow (k1\_bvfunc\_1\ X0\ (k1\_bvfunc\_1\ X0\ X1) = X1) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge (((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1)))))\wedge((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k1\_bvfunc\_2\ X0)))\wedge(m1\_eqrel\_1\ X3\ X0))))\Rightarrow((v1\_funct\_1\ (k7\_bvfunc\_2\ X0\ X1\ X2\ X3))\wedge((v1\_funct\_2\ (k7\_bvfunc\_2\ X0\ X1\ X2\ X3)\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ (k7\_bvfunc\_2\ X0\ X1\ X2\ X3)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1)))))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge (((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1)))))\wedge((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k1\_bvfunc\_2\ X0)))\wedge(m1\_eqrel\_1\ X3\ X0))))\Rightarrow((v1\_funct\_1\ (k6\_bvfunc\_2\ X0\ X1\ X2\ X3))\wedge((v1\_funct\_2\ (k6\_bvfunc\_2\ X0\ X1\ X2\ X3)\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ (k6\_bvfunc\_2\ X0\ X1\ X2\ X3)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1)))))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1))))))\Rightarrow((v1\_funct\_1\ (k1\_bvfunc\_1\ X0\ X1))\wedge((v1\_funct\_2\ (k1\_bvfunc\_1\ X0\ X1)\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ (k1\_bvfunc\_1\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1))))) \tag{7}$$

**Theorem 1**

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k1\_partit1\ X0)))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ k6\_margrel1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k6\_margrel1)))))\Rightarrow(\forall X3.(m1\_eqrel\_1\ X3\ X0)\Rightarrow(r2\_funct\_2\ X0\ k6\_margrel1\ (k1\_bvfunc\_1\ X0\ (k7\_bvfunc\_2\ X0\ X2\ X1\ X3))\ (k6\_bvfunc\_2\ X0\ (k1\_bvfunc\_1\ X0\ X2)\ X1\ X3)))))$$