

## t12\_bvfunc11

(TMP7pTmAjMTNfujCCY1DaC8SckKiDqSbydz)

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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  $r1\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_bvfunc\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_bvfunc\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_partit1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\
 & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
 & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
 & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\
 & ((v1\_funct\_2 X3 X0 k6\_margrel1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (((r1\_bvfunc\_1 X0 X1 X2) \wedge ( \\
 & r1\_bvfunc\_1 X0 X2 X1)) \Rightarrow (r2\_funct\_2 X0 k6\_margrel1 X1 X2)) \wedge (((r1\_bvfunc\_1 \\
 & X0 X1 X2) \wedge (r1\_bvfunc\_1 X0 X2 X3)) \Rightarrow (r1\_bvfunc\_1 X0 X1 X3)))))) \\
 & \tag{1}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\
 & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
 & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
 & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
 & (k1\_zfmisc\_1 (k1\_bvfunc\_2 X0))) \Rightarrow (\forall X4.(m1\_eqrel\_1 X4 X0) \Rightarrow \\
 & ((r1\_bvfunc\_1 X0 X1 X2) \Rightarrow (r1\_bvfunc\_1 X0 (k7\_bvfunc\_2 X0 X1 X3 X4) \\
 & (k7\_bvfunc\_2 X0 X2 X3 X4)))))) \\
 & \tag{2}
 \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k1\_partit1 X0))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 k6\_margrel1)))))) \Rightarrow (\forall X3.(m1\_eqrel\_1 X3 X0) \Rightarrow (r1.bvfunc\_1 \\ X0 X2 (k7.bvfunc\_2 X0 X2 X1 X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k1\_partit1 X0))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 k6\_margrel1)))))) \Rightarrow (\forall X3.(m1\_eqrel\_1 X3 X0) \Rightarrow (r1.bvfunc\_1 \\ X0 (k6.bvfunc\_2 X0 X2 X1 X3) X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.k1.bvfunc\_2 X0 = k1\_partit1 X0 \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge \\ (((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \wedge ((m1\_subset\_1 \\ X2 (k1\_zfmisc\_1 (k1.bvfunc\_2 X0))) \wedge (m1\_eqrel\_1 X3 X0)))) \Rightarrow ((v1\_funct\_1 \\ (k7.bvfunc\_2 X0 X1 X2 X3)) \wedge ((v1\_funct\_2 (k7.bvfunc\_2 X0 X1 X2 X3) \\ X0 k6\_margrel1) \wedge (m1\_subset\_1 (k7.bvfunc\_2 X0 X1 X2 X3) (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge \\ (((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \wedge ((m1\_subset\_1 \\ X2 (k1\_zfmisc\_1 (k1.bvfunc\_2 X0))) \wedge (m1\_eqrel\_1 X3 X0)))) \Rightarrow ((v1\_funct\_1 \\ (k6.bvfunc\_2 X0 X1 X2 X3)) \wedge ((v1\_funct\_2 (k6.bvfunc\_2 X0 X1 X2 X3) \\ X0 k6\_margrel1) \wedge (m1\_subset\_1 (k6.bvfunc\_2 X0 X1 X2 X3) (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \end{aligned} \quad (7)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ (k1\_zfmisc\_1 (k1.bvfunc\_2 X0))) \Rightarrow (\forall X3.(m1\_eqrel\_1 X3 X0) \Rightarrow \\ (\forall X4.(m1\_eqrel\_1 X4 X0) \Rightarrow (r1.bvfunc\_1 X0 (k6.bvfunc\_2 X0 \\ (k7.bvfunc\_2 X0 X1 X2 X3) X2 X4) (k7.bvfunc\_2 X0 (k7.bvfunc\_2 X0 X1 \\ X2 X4) X2 X3)))))) \end{aligned}$$