

## t3\_bvfunc10

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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  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

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

Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\
 & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
 & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
 & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\
 & ((v1\_funct\_2 X3 X0 k6\_margrel1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (r1\_bvfunc\_1 X0 (k2\_bvfunc\_1 \\
 & X0 (k2\_bvfunc\_1 X0 (k5\_bvfunc\_1 X0 X1 (k1\_bvfunc\_1 X0 X2)) (k5\_bvfunc\_1 \\
 & X0 X2 (k1\_bvfunc\_1 X0 X3))) (k5\_bvfunc\_1 X0 X3 (k1\_bvfunc\_1 X0 X1))) \\
 & (k2\_bvfunc\_1 X0 (k2\_bvfunc\_1 X0 (k5\_bvfunc\_1 X0 X2 (k1\_bvfunc\_1 \\
 & X0 X1)) (k5\_bvfunc\_1 X0 X3 (k1\_bvfunc\_1 X0 X2))) (k5\_bvfunc\_1 X0 \\
 & X1 (k1\_bvfunc\_1 X0 X3)))))) \\
 & \tag{2}
 \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_funct\_1 \\ & X1) \wedge ((v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 k6\_margrel1)))))) \Rightarrow ((v1\_funct\_1 (k5\_bvfunc\_1 X0 X1 X2)) \wedge ( \\ & (v1\_funct\_2 (k5\_bvfunc\_1 X0 X1 X2) X0 k6\_margrel1) \wedge (m1\_subset\_1 \\ & (k5\_bvfunc\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \end{aligned} \quad (3)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow ((v1\_funct\_1 (k1\_bvfunc\_1 \\ & X0 X1)) \wedge ((v1\_funct\_2 (k1\_bvfunc\_1 X0 X1) X0 k6\_margrel1) \wedge (m1\_subset\_1 \\ & (k1\_bvfunc\_1 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \end{aligned} \quad (5)$$

Assume the following.

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

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 X0 k6\_margrel1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (r2\_funct\_2 X0 k6\_margrel1 \\ & (k2\_bvfunc\_1 X0 (k2\_bvfunc\_1 X0 (k5\_bvfunc\_1 X0 X1 (k1\_bvfunc\_1 \\ & X0 X2)) (k5\_bvfunc\_1 X0 X2 (k1\_bvfunc\_1 X0 X3))) (k5\_bvfunc\_1 X0 \\ & X3 (k1\_bvfunc\_1 X0 X1))) (k2\_bvfunc\_1 X0 (k2\_bvfunc\_1 X0 (k5\_bvfunc\_1 \\ & X0 X2 (k1\_bvfunc\_1 X0 X1)) (k5\_bvfunc\_1 X0 X3 (k1\_bvfunc\_1 X0 X2))) \\ & (k5\_bvfunc\_1 X0 X1 (k1\_bvfunc\_1 X0 X3)))))) \end{aligned}$$