

# t47\_bcialg\_2 (TM- cyJkp8rxZoEmD68bBLJH5niSphXGHV1Y4)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v4\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v5\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v7\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $l2\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $k4\_bcialg\_2 : \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_bcialg\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_bcialg\_2 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_bcialg\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m3\_bcialg\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_bcialg\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow & (1) \\ & (r1\_tarski (k4\_bcialg\_2 X0) (k6\_bcialg\_2 X0)) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow & (2) \\ & (r1\_tarski (k4\_bcialg\_2 X0) (k5\_bcialg\_2 X0)) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow & \\ & (\forall X1. ((v1\_partfun1 X1 (u1\_struct\_0 X0)) \wedge ((v3\_relat\_2 \\ X1) \wedge ((v8\_relat\_2 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ (u1\_struct\_0 X0) (u1\_struct\_0 X0))))))) \Rightarrow ((m1\_bcialg\_2 X1 X0) \Leftrightarrow & (3) \\ & ((m3\_bcialg\_2 X1 X0) \wedge (m2\_bcialg\_2 X1 X0)))) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (\forall X1.(m3\_bcialg\_2 X1 X0) \Rightarrow ((v1\_partfun1 X1 (u1\_struct\_0 \\ & X0)) \wedge ((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (X2 = k3\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ & (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (r1\_tarski X0 X1) \Leftrightarrow (\forall X2. (X2 \in X0) \Rightarrow \\ & (X2 \in X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (k6\_bcialg\_2 X0 = ReplSep (toset (\lambda X1 : \iota.m3\_bcialg\_2 X1 X0)) \\ & (\lambda X1 : \iota.True) (\lambda X1 : \iota.X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (k5\_bcialg\_2 X0 = ReplSep (toset (\lambda X1 : \iota.m2\_bcialg\_2 X1 X0)) \\ & (\lambda X1 : \iota.True) (\lambda X1 : \iota.X1))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (k4\_bcialg\_2 X0 = ReplSep (toset (\lambda X1 : \iota.m1\_bcialg\_2 X1 X0)) \\ & (\lambda X1 : \iota.True) (\lambda X1 : \iota.X1))) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (k4\_bcialg\_2 X0 = k3\_xboole\_0 (k5\_bcialg\_2 X0) (k6\_bcialg\_2 X0)) \end{aligned}$$