

t44\_bcialg\_3  
(TMRKrLxG4j53t2A4tdZj1R27gGbxmPdtKyY)

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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  $v8\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v1\_bcialg\_3 : \iota \Rightarrow o$  be given. Let  $v6\_bcialg\_3 : \iota \Rightarrow o$  be given. Let  $l2\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_bcialg\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v11\_bcialg\_3 : \iota \Rightarrow o$  be given. Let  $k1\_bcialg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l1\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge ((v8\_bcialg\_1 X0) \wedge \\ & ((v1\_bcialg\_3 X0) \wedge ((v6\_bcialg\_3 X0) \wedge (l2\_bcialg\_1 X0)))))))))) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v2\_bcialg\_3 \\ & X1 X0) \Rightarrow ((v11\_bcialg\_3 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow (k1\_bcialg\_1 X0 (k1\_bcialg\_1 X0 X1 X2) (k1\_bcialg\_1 X0 (k1\_bcialg\_1 \\ & X0 X1 X2) X2) = k4\_struct\_0 X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_bcialg\_1 X0)) \Rightarrow (((\neg v2\_struct\_0 \\ & X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 X0) \wedge ((v5\_bcialg\_1 X0) \wedge \\ & ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Leftrightarrow ((v5\_bcialg\_1 X0) \wedge \\ & ((v7\_bcialg\_1 X0) \wedge (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 \\ & X3 (u1\_struct\_0 X0)) \Rightarrow ((k1\_bcialg\_1 X0 (k1\_bcialg\_1 X0 (k1\_bcialg\_1 \\ & X0 X1 X2) (k1\_bcialg\_1 X0 X1 X3)) (k1\_bcialg\_1 X0 X3 X2) = k4\_struct\_0 \\ & X0) \wedge (k1\_bcialg\_1 X0 (k1\_bcialg\_1 X0 X1 (k1\_bcialg\_1 X0 X1 X2)) X2 = \\ & k4\_struct\_0 X0)))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l2\_bcialg\_1 X0) \Rightarrow ((l1\_bcialg\_1 X0) \wedge (l2\_struct\_0 X0)) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1\_bcialg\_1 X0) \wedge ((m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 \\ & (k1\_bcialg\_1 X0 X1 X2) (u1\_struct\_0 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge ((v8\_bcialg\_1 X0) \wedge \\ & (l2\_bcialg\_1 X0))))))) \Rightarrow ((v11\_bcialg\_3 X0) \Leftrightarrow (\forall X1. (m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow (k1\_bcialg\_1 X0 X1 (k1\_bcialg\_1 X0 X2 X1) = X1)))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge ((v8\_bcialg\_1 X0) \wedge \\ & ((v1\_bcialg\_3 X0) \wedge ((v6\_bcialg\_3 X0) \wedge (l2\_bcialg\_1 X0)))))))))) \Rightarrow \\ & (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v2\_bcialg\_3 \\ & X1 X0) \Rightarrow ((v11\_bcialg\_3 X0) \Leftrightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow (k1\_bcialg\_1 X0 X2 (k1\_bcialg\_1 X0 X1 X2) = X2)))))) \end{aligned}$$