

t31\_bcialg\_4  
(TMR5Ycp7N96VykwDLpP6gA9gzYvYTaG91)

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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  $v2\_bcialg\_4 : \iota \Rightarrow o$  be given. Let  $l1\_bcialg\_4 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_bcialg\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_bcialg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_finsop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_bcialg\_4 : \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge ((v2\_bcialg\_4 X0) \wedge \\ & (l1\_bcialg\_4 X0))))))) \Rightarrow (\forall X1. (m2\_finseq\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2. (m2\_finseq\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k7\_bcialg\_4 \\ & X0 (k8\_finseq\_1 (u1\_struct\_0 X0) X1 X2) = k1\_bcialg\_4 X0 (k7\_bcialg\_4 \\ & X0 X1) (k7\_bcialg\_4 X0 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_bcialg\_4 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_finsop\_1 (u1\_struct\_0 \\ & X0) (k12\_finseq\_1 (u1\_struct\_0 X0) X1) (u1\_bcialg\_4 X0) = X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_bialg\_4 X0) \Rightarrow ((l2\_bialg\_1 X0) \wedge (l2\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (m1\_subset\_1 (k4\_struct\_0 X0) (u1\_struct\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow (m2\_finseq\_1 (k12\_finseq\_1 X0 X1) X0) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_bialg\_4 X0)) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k7\_bialg\_4 X0 X1 = k1\_finsop\_1 (u1\_struct\_0 X0) X1 (u1\_bialg\_4 X0))) \quad (10)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bialg\_1 X0) \wedge ((v4\_bialg\_1 X0) \wedge ((v5\_bialg\_1 X0) \wedge ((v7\_bialg\_1 X0) \wedge ((v2\_bialg\_4 X0) \wedge (l1\_bialg\_4 X0))))))) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k7\_bialg\_4 X0 (k8\_finseq\_1 (u1\_struct\_0 X0) X1 (k12\_finseq\_1 (u1\_struct\_0 X0) X2)) = k1\_bialg\_4 X0 (k7\_bialg\_4 X0 X1) X2)))$$