

t42_bcialg_4
(TMTfvXamof8pdkUT4aTTcojs8M5eTJFsgEi)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_bcialg_4 : \iota \Rightarrow o$ 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 $v2_bcialg_4 : \iota \Rightarrow o$ be given. Let $v3_bcialg_4 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_bcialg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_bcialg_1 : \iota \Rightarrow o$ be given. Let $v1_bcialg_3 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow (((\neg v2_struct_0 \\ &X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge \\ &((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge ((v1_bcialg_3 X0) \wedge (l2_bcialg_1 \\ &X0)))))))) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ &(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ &(u1_struct_0 X0)) \Rightarrow ((k1_bcialg_1 X0 X1 (k1_bcialg_1 X0 (k4_struct_0 \\ &X0) X2) = X1) \wedge (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X3) (k1_bcialg_1 \\ &X0 X1 X2) = k1_bcialg_1 X0 (k1_bcialg_1 X0 X2 X3) (k1_bcialg_1 X0 X2 \\ &X1))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. (l1_bcialg_4 X0) \Rightarrow ((l2_bcialg_1 X0) \wedge (l2_struct_0 X0)) \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ &X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\ &((v2_bcialg_4 X0) \wedge (l1_bcialg_4 X0)))))))) \Rightarrow ((v3_bcialg_4 X0) \Leftrightarrow \\ &(\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ &X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 X1 (k1_bcialg_1 X0 X1 X2) = \\ &k1_bcialg_1 X0 X2 (k1_bcialg_1 X0 X2 X1)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow ((v2_bcialg_4 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& \quad (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) X3 = k1_bcialg_1 \\
& \quad \quad X0 X1 (k1_bcialg_4 X0 X2 X3))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow ((v1_bcialg_3 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 X1 (k1_bcialg_1 \\
& \quad \quad X0 X1 X2) = k1_bcialg_1 X0 X2 (k1_bcialg_1 X0 X2 X1))))))
\end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow (((\neg v2_struct_0 \\
& \quad X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge \\
& \quad ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge ((v2_bcialg_4 X0) \wedge ((v3_bcialg_4 \\
& \quad \quad X0) \wedge (l1_bcialg_4 X0)))))))) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& \quad \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& \quad (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((k1_bcialg_1 X0 X1 (k1_bcialg_1 \\
& \quad \quad X0 (k4_struct_0 X0) X2) = X1) \wedge ((k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 \\
& \quad \quad X3) (k1_bcialg_1 X0 X1 X2) = k1_bcialg_1 X0 (k1_bcialg_1 X0 X2 X3) \\
& \quad \quad (k1_bcialg_1 X0 X2 X1)) \wedge (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) X3 = \\
& \quad \quad \quad k1_bcialg_1 X0 X1 (k1_bcialg_4 X0 X2 X3)))))))))
\end{aligned}$$