

t49_bcialg_6

(TMKyWH7iDvJQ6CqbEXm1UAkbeR47o3bg4rS)

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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 $m2_bcialg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m5_bcialg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_bcialg_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k9_bcialg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m4_bcialg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $g2_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_bcialg_1 : \iota \Rightarrow o$ be given. Let $m1_bcialg_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_bcialg_1 : \iota \Rightarrow o$ be given. Let $u1_bcialg_1 : \iota \Rightarrow \iota$ be given. Let $v2_bcialg_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_bcialg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_bcialg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow \\ & ((\forall X3.\neg(X3 \in X1)\wedge(\forall X4.\neg(X4 \in X0)\wedge(X3 = k1_funct_1 \\ & X2 X4)))\Rightarrow(k2_relset_1 X1 X2 = X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 X0)\wedge \\ & ((v4_bcialg_1 X0)\wedge((v5_bcialg_1 X0)\wedge((v7_bcialg_1 X0)\wedge(l2_bcialg_1 \\ & X0))))))\wedge(m2_bcialg_1 X1 X0))\Rightarrow(\forall X2.(m5_bcialg_2 X2 X0 \\ & X1)\Leftrightarrow(m4_bcialg_2 X2 X0 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 \\ & X2 X0 X1)\Leftrightarrow(m1_subset_1 X2 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 \\ & X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\ & (k8_eqrel_1 X0 X1 = k7_eqrel_1 X0 X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(k3_funct_2 X0 \\ & X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(\\ & k2_relset_1 X0 X1 = k10_xtuple_0 X1) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0))))\wedge(m1_subset_1 X2 X0))\Rightarrow(\forall X3. \\ & \forall X4.\forall X5.(g2_bcialg_1 X0 X1 X2 = g2_bcialg_1 X3 X4 X5)\Rightarrow \\ & ((X0 = X3)\wedge((X1 = X4)\wedge(X2 = X5)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 \\ X0)\wedge((v4_bcialg_1 X0)\wedge((v5_bcialg_1 X0)\wedge((v7_bcialg_1 X0)\wedge \\ (l2_bcialg_1 X0))))))\wedge((m2_bcialg_1 X1 X0)\wedge(m4_bcialg_2 X2 X0 \\ X1)))\Rightarrow((v2_bcialg_1 (k9_bcialg_2 X0 X2))\wedge((v3_bcialg_1 (k9_bcialg_2 \\ X0 X2))\wedge((v4_bcialg_1 (k9_bcialg_2 X0 X2))\wedge((v5_bcialg_1 (k9_bcialg_2 \\ X0 X2))\wedge(v7_bcialg_1 (k9_bcialg_2 X0 X2)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 X0)\wedge \\ ((v4_bcialg_1 X0)\wedge((v5_bcialg_1 X0)\wedge((v7_bcialg_1 X0)\wedge(l2_bcialg_1 \\ X0))))))\wedge(m1_bcialg_2 X1 X0))\Rightarrow(\neg v1_xboole_0 (k7_eqrel_1 (u1_struct_0 \\ X0) X1)) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 (u1_struct_0 X0)) \quad (13)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(m1_subset_1 (u2_struct_0 X0) (u1_struct_0 X0)) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_bcialg_1 X0)\Rightarrow((v1_funct_1 (u1_bcialg_1 X0))\wedge \\ ((v1_funct_2 (u1_bcialg_1 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u1_bcialg_1 \\ X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 X0)\wedge \\ ((v4_bcialg_1 X0)\wedge((v5_bcialg_1 X0)\wedge((v7_bcialg_1 X0)\wedge(l2_bcialg_1 \\ X0))))))\wedge(m2_bcialg_1 X1 X0))\Rightarrow(\forall X2.(m5_bcialg_2 X2 X0 \\ X1)\Rightarrow(m1_bcialg_2 X2 X0)) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 X0)\wedge \\ ((v4_bcialg_1 X0)\wedge((v5_bcialg_1 X0)\wedge((v7_bcialg_1 X0)\wedge(l2_bcialg_1 \\ X0))))))\wedge(m2_bcialg_1 X1 X0))\Rightarrow(\forall X2.(m4_bcialg_2 X2 X0 \\ X1)\Rightarrow(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) \\ (u1_struct_0 X0)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 \\ X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(l1_struct_0 X0) \quad (19)$$

Assume the following.

$$\forall X0.(l2_bcialg_1 X0)\Rightarrow((l1_bcialg_1 X0)\wedge(l2_struct_0 X0)) \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 X0)\wedge \\ ((v4_bcialg_1 X0)\wedge(v5_bcialg_1 X0)\wedge(v7_bcialg_1 X0)\wedge(l2_bcialg_1 \\ X0))))))\wedge(m1_bcialg_2 X1 X0)\Rightarrow(l2_bcialg_1 (k9_bcialg_2 X0 X1)) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 \\ X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\ (m1_subset_1 (k7_eqrel_1 X0 X1) (k1_zfmisc_1 (k1_zfmisc_1 X0))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 \\ X0)\wedge((v4_bcialg_1 X0)\wedge(v5_bcialg_1 X0)\wedge(v7_bcialg_1 X0)\wedge \\ (l2_bcialg_1 X0))))))\wedge((m2_bcialg_1 X1 X0)\wedge(m4_bcialg_2 X2 X0 \\ X1))\Rightarrow((v1_funct_1 (k6_bcialg_6 X0 X1 X2))\wedge((v1_funct_2 (k6_bcialg_6 \\ X0 X1 X2) (u1_struct_0 X0) (u1_struct_0 (k9_bcialg_2 X0 X2)))\wedge \\ (v2_bcialg_6 (k6_bcialg_6 X0 X1 X2) X0 (k9_bcialg_2 X0 X2))\wedge(m1_subset_1 \\ (k6_bcialg_6 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ X0) (u1_struct_0 (k9_bcialg_2 X0 X2)))))))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(\\ (v2_funct_2 X1 X0)\Leftrightarrow(k2_relset_1 X0 X1 = X0)) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 \\ X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\ (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 X0)))\Rightarrow \\ ((X2 = k7_eqrel_1 X0 X1)\Leftrightarrow(\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 \\ X0))\Rightarrow((X3 \in X2)\Leftrightarrow(\exists X4.(X4 \in X0)\wedge(X3 = k6_eqrel_1 X0 X0 X1 X4)))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & (\forall X1.(m1_bcialg_2 X1 X0) \Rightarrow (k9_bcialg_2 X0 X1 = g2_bcialg_1 \\ & (k8_eqrel_1 (u1_struct_0 X0) X1) (k7_bcialg_2 X0 X1) (k8_bcialg_2 \\ & X0 X1))) \end{aligned} \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & (\forall X1.(m2_bcialg_1 X1 X0) \Rightarrow (\forall X2.(m5_bcialg_2 X2 X0 \\ & X1) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 \\ & X0) (u1_struct_0 (k9_bcialg_2 X0 X2)))) \wedge ((v2_bcialg_6 X3 X0 (k9_bcialg_2 \\ & X0 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 (k9_bcialg_2 X0 X2)))))))))) \Rightarrow ((X3 = k6_bcialg_6 \\ & X0 X1 X2) \Leftrightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (k3_funct_2 \\ & (u1_struct_0 X0) (u1_struct_0 (k9_bcialg_2 X0 X2)) X3 X4 = k6_eqrel_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0) X2 X4)))))) \end{aligned} \quad (27)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (28)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (29)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge \\ & ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 \\ & X0)))))) \wedge (m2_bcialg_1 X1 X0)) \Rightarrow (\forall X2.(m4_bcialg_2 X2 X0 \\ & X1) \Rightarrow ((v1_partfun1 X2 (u1_struct_0 X0)) \wedge ((v3_relat_2 X2) \wedge (v8_relat_2 \\ & X2)))) \end{aligned} \quad (30)$$

Assume the following.

$$\forall X0. (l2_bcialg_1 X0) \Rightarrow ((v2_bcialg_1 X0) \Rightarrow (X0 = g2_bcialg_1 (u1_struct_0 X0) (u1_bcialg_1 X0) (u2_struct_0 X0))) \quad (31)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & (\forall X1.(m2_bcialg_1 X1 X0) \Rightarrow (\forall X2.(m5_bcialg_2 X2 X0 \\ & X1) \Rightarrow (v2_funct_2 (k6_bcialg_6 X0 X1 X2) (u1_struct_0 (k9_bcialg_2 \\ & X0 X2)))))) \end{aligned}$$