

t2_catalan1 (TMY-
DhkG5JBBAeegmpPx61CgpXyX1tUv3JoB)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $k7_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $k1_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_0 : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (\neg \\ (r1_xxreal_0 np_1 X0) \wedge ((r1_xxreal_0 np_1 (k7_nat_d X1 X0)) \wedge \\ (r1_xxreal_0 X1 (k7_nat_d X1 X0)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow ((\\ \neg(r1_xxreal_0 X1 X0) \wedge (\neg r1_xxreal_0 (k1_nat_1 X0 np_1) X1)) \Rightarrow (\\ r1_xxreal_0 X0 (k7_nat_d X1 np_1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (k7_nat_d X0 np_2 = k7_nat_d (k7_nat_d X0 np_1) np_1) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (\forall X2. \\ (v7_ordinal1 X2) \Rightarrow ((r1_xxreal_0 X0 X1) \Rightarrow (r1_xxreal_0 (k7_nat_d X0 X2) (k7_nat_d X1 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (r1_xxreal_0 (k7_nat_d X0 X1) X0)) \quad (5)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(\forall X1.(v7_ordinal1\ X1)\Rightarrow(k7_nat_d\ (k2_xcmplx_0\ X0\ X1)\ X1 = X0)) \quad (6)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(\neg(r1_xxreal_0\ X0\ np_1)\wedge((X0\neq k6_numbers)\wedge(X0\neq np_1))) \quad (7)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(\neg(X0\neq k6_numbers)\wedge(r1_xxreal_0\ (k4_nat_1\ np_2\ X0)\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_xcmplx_0\ X0)\wedge((v1_xcmplx_0\ X1)\wedge(v1_xcmplx_0\ X2)))\Rightarrow(k2_xcmplx_0\ (k2_xcmplx_0\ X0\ X1)\ X2 = k2_xcmplx_0\ X0\ (k2_xcmplx_0\ X1\ X2)) \quad (9)$$

Assume the following.

$$((v2_xxreal_0\ np_2)\wedge(m2_subset_1\ np_2\ k1_numbers\ k5_numbers))\wedge((m1_subset_1\ np_2\ k5_numbers)\wedge(m1_subset_1\ np_2\ k1_numbers)) \quad (10)$$

Assume the following.

$$((v2_xxreal_0\ np_1)\wedge(m2_subset_1\ np_1\ k1_numbers\ k5_numbers))\wedge((m1_subset_1\ np_1\ k5_numbers)\wedge(m1_subset_1\ np_1\ k1_numbers)) \quad (11)$$

Assume the following.

$$(m2_subset_1\ np_0\ k1_numbers\ k5_numbers)\wedge((m1_subset_1\ np_0\ k5_numbers)\wedge(m1_subset_1\ np_0\ k1_numbers)) \quad (12)$$

Assume the following.

$$k2_xcmplx_0\ np_0\ np_1 = np_1 \quad (13)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1\ X0\ k5_numbers)\wedge(v7_ordinal1\ X1))\Rightarrow(k4_nat_1\ X0\ X1 = k3_xcmplx_0\ X0\ X1) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(v7_ordinal1\ X1))\Rightarrow(v7_ordinal1\ (k3_xcmplx_0\ X0\ X1)) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(v7_ordinal1\ X1))\Rightarrow(v7_ordinal1\ (k2_xcmplx_0\ X0\ X1)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(v7_ordinal1\ X1))\Rightarrow(m1_subset_1\ (k7_nat_d\ X0\ X1)\ k5_numbers) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0\ X0)\wedge(v1_xcmplx_0\ X1))\Rightarrow(k2_xcmplx_0\ X0\ X1 = k2_xcmplx_0\ X1\ X0) \quad (19)$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ k4_ordinal1)\Rightarrow(v7_ordinal1\ X0) \quad (20)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(v1_xcmplx_0\ X0) \quad (21)$$

Theorem 1

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow((r1_xxreal_0\ np_1\ X0)\Rightarrow(r1_xxreal_0\ (k7_nat_d\ X0\ np_1)\ (k7_nat_d\ (k4_nat_1\ np_2\ X0\ np_2))))$$