t5_nat_3 (TMYCr4ZqF4MESw1955CWkyhpUDpYpatjwfa)

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Let $v7\_ordinal1 : \iota \Rightarrow o$ be given. Let $v1\_int\_2 : \iota \Rightarrow o$ be given. Let $r1\_nat\_d : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_newton : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_int\_1 : \iota \Rightarrow o$ be given. Let $r1\_int\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np\_\_1 : \iota$ be given. Let $r1\_int\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_int\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(v7\_ordinal1\ X1) \Rightarrow (\forall X2.\ (v7\_ordinal1\ X2) \Rightarrow (((r1\_nat\_d\ X0\ X1) \wedge (r1\_nat\_d\ X1\ X2)) \Rightarrow (r1\_nat\_d\ X0\ X2)))) \tag{1}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(v1\_int\_1\ X1) \Rightarrow (\forall X2.\ (v1\_int\_1\ X2) \Rightarrow ((r1\_int\_2\ X1\ X2) \Rightarrow (r1\_int\_2\ (k1\_newton\ X1\ X0)\ X2)))) \tag{2}$$

Assume the following.

$$r1\_xxreal\_0\ np\_\_1\ np\_\_1 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1\ X0) \wedge (v7\_ordinal1\ X1)) \Rightarrow (r1\_nat\_d\ X0\ X0) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_int\_1\ X0) \wedge (v1\_int\_1\ X1)) \Rightarrow (r1\_int\_1\ X0\ X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1\ X0) \wedge (v7\_ordinal1\ X1)) \Rightarrow ((r1\_nat\_d\ X0\ X1) \Leftrightarrow (r1\_int\_1\ X0\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1\ X0) \wedge (v7\_ordinal1\ X1)) \Rightarrow (v7\_ordinal1\ (k1\_newton\ X0\ X1)) \tag{7}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.(v7\_ordinal1\ X1)\Rightarrow(\forall X2.(v7\_ordinal1\ X2)\Rightarrow((X2 = k3\_int\_2\ X0\ X1)\Leftrightarrow((r1\_nat\_d\ X2\ X0)\wedge((r1\_nat\_d\ X2\ X1)\wedge(\forall X3.(v7\_ordinal1\ X3)\Rightarrow(((r1\_nat\_d\ X3\ X0)\wedge(r1\_nat\_d\ X3\ X1))\Rightarrow(r1\_nat\_d\ X3\ X2)))))))) \tag{8}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow((v1\_int\_2\ X0)\Leftrightarrow((\neg r1\_xxreal\_0\ X0\ np\_\_1)\wedge(\forall X1.(v7\_ordinal1\ X1)\Rightarrow(\neg(r1\_int\_1\ X1\ X0)\wedge((X1\neq np\_\_1)\wedge(X1\neq X0)))))) \tag{9}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.(v7\_ordinal1\ X1)\Rightarrow((r1\_int\_2\ X0\ X1)\Leftrightarrow(\forall X2.((v7\_ordinal1\ X2)\wedge(v1\_int\_2\ X2))\Rightarrow(\neg(r1\_nat\_d\ X2\ X0)\wedge(r1\_nat\_d\ X2\ X1))))) \tag{10}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(v1\_int\_1\ X0) \tag{11}$$

Theorem 1

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.(v7\_ordinal1\ X1)\Rightarrow(\forall X2.((v7\_ordinal1\ X2)\wedge(v1\_int\_2\ X2))\Rightarrow((r1\_nat\_d\ X2\ (k1\_newton\ X0\ X1))\Rightarrow(r1\_nat\_d\ X2\ X0))))$$