

t62\_newton  
(TMa6ZyCkiqG8ZJ7FypiDuy9uFdLZU2SnyzT)

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Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r1\_nat\_d : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_int\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_int\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0) \wedge (v7\_ordinal1 X1)) \Rightarrow (k6\_nat\_d X0 X1 = k3\_int\_2 X0 X1) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0) \wedge (v7\_ordinal1 X1)) \Rightarrow (k5\_nat\_d X0 X1 = k2\_int\_2 X0 X1) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_int\_1 X0) \wedge (v1\_int\_1 X1)) \Rightarrow (v7\_ordinal1 (k3\_int\_2 X0 X1)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_int\_1 X0) \wedge (v1\_int\_1 X1)) \Rightarrow (v7\_ordinal1 (k2\_int\_2 X0 X1)) \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (\forall X2. \\ & (v7\_ordinal1 X2) \Rightarrow ((X2 = k3\_int\_2 X0 X1) \Leftrightarrow ((r1\_nat\_d X2 X0) \wedge ((r1\_nat\_d \\ & \quad X2 X1) \wedge (\forall X3.(v7\_ordinal1 X3) \Rightarrow (((r1\_nat\_d X3 X0) \wedge (r1\_nat\_d \\ & \quad X3 X1)) \Rightarrow (r1\_nat\_d X3 X2)))))))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(v7\_ordinal1\ X1) \Rightarrow (\forall X2. \\ & (v7\_ordinal1\ X2) \Rightarrow ((X2 = k2\_int\_2\ X0\ X1) \Leftrightarrow ((r1\_nat\_d\ X0\ X2) \wedge ((r1\_nat\_d \\ & X1\ X2) \wedge (\forall X3.(v7\_ordinal1\ X3) \Rightarrow (((r1\_nat\_d\ X0\ X3) \wedge (r1\_nat\_d \\ & X1\ X3)) \Rightarrow (r1\_nat\_d\ X2\ X3)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0) \Rightarrow (v1\_int\_1\ X0) \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(v7\_ordinal1\ X1) \Rightarrow (r1\_nat\_d \\ & (k6\_nat\_d\ X0\ X1)\ (k5\_nat\_d\ X0\ X1))) \end{aligned}$$