

Inference at * 1
of proof for Lemma fast-fib:

....assertion.... NILNIL

$\vdash \forall n, a, b: \mathbb{N}.$

$\{m: \mathbb{N} \mid$
 $\forall k: \mathbb{N}.$
 $(a = \text{fib}(k))$
 $\Rightarrow ((k \leq 0) \Rightarrow (b = 0))$
 $\Rightarrow ((0 < k) \Rightarrow (b = \text{fib}(k - 1)))$
 $\Rightarrow (m = \text{fib}(n+k))\}$

by (InductionOnNat)

CollapseTHEN (Auto').

1:

1. $a : \mathbb{N}$

2. $b : \mathbb{N}$

$\vdash \{m: \mathbb{N} \mid$

$\forall k: \mathbb{N}.$

$(a = \text{fib}(k))$

$\Rightarrow ((k \leq 0) \Rightarrow (b = 0))$

$\Rightarrow ((0 < k) \Rightarrow (b = \text{fib}(k - 1)))$

$\Rightarrow (m = \text{fib}(0+k))\}$

2:

1. $n : \mathbb{Z}$

2. $0 < n$

3. $\forall a, b: \mathbb{N}.$

$\{m: \mathbb{N} \mid$

$\forall k: \mathbb{N}.$

$(a = \text{fib}(k))$

$\Rightarrow ((k \leq 0) \Rightarrow (b = 0))$

$\Rightarrow ((0 < k) \Rightarrow (b = \text{fib}(k - 1)))$

$\Rightarrow (m = \text{fib}((n - 1)+k))\}$

4. $a : \mathbb{N}$

5. $b : \mathbb{N}$

$\vdash \{m: \mathbb{N} \mid$

$\forall k: \mathbb{N}.$

$(a = \text{fib}(k))$

$\Rightarrow ((k \leq 0) \Rightarrow (b = 0))$

$\Rightarrow ((0 < k) \Rightarrow (b = \text{fib}(k - 1)))$

$\Rightarrow (m = \text{fib}(n+k))\}$

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http://www.nuprl.org/FDLcontent/p0_963683_/p25_480536_{fast-fib}1.html