

Inference at * 1 2 1 2 1 1
of proof for Lemma fast-fib:

....antecedent.... NILNIL

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. $b : \mathbb{N}$
6. $\forall b_1 : \mathbb{N}.$
 $\{m : \mathbb{N} \mid$
 $\forall k : \mathbb{N}.$
 $(a + b = \text{fib}(k))$
 $\Rightarrow ((k \leq 0) \Rightarrow (b_1 = 0))$
 $\Rightarrow ((0 < k) \Rightarrow (b_1 = \text{fib}(k - 1)))$
 $\Rightarrow (m = \text{fib}((n - 1) + k))\}$
7. $m : \mathbb{N}$
8. $\forall k : \mathbb{N}.$
 $(a + b = \text{fib}(k))$
 $\Rightarrow ((k \leq 0) \Rightarrow (a = 0))$
 $\Rightarrow ((0 < k) \Rightarrow (a = \text{fib}(k - 1)))$
 $\Rightarrow (m = \text{fib}((n - 1) + k))$
9. $k : \mathbb{N}$
10. $a = \text{fib}(k)$
11. $(k \leq 0) \Rightarrow (b = 0)$
12. $(0 < k) \Rightarrow (b = \text{fib}(k - 1))$
- $\vdash a + b = \text{fib}(k + 1)$
by CaseNat 0 'k'

1:

13. $k = 0$
 $\vdash a + b = \text{fib}(0 + 1)$

2:

13. $\neg(k = 0)$
 $\vdash a + b = \text{fib}(k + 1)$

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http://www.nuprl.org/FDLcontent/p0_963683_/p25_480536_{fast-fib}1_2_1_2_1_1.html