

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

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. $\forall b@_0 : \mathbb{N}.$
 $\{m : \mathbb{N} \mid$
 $\forall k : \mathbb{N}.$
 $(a + b = \text{fib}(k))$
 $\Rightarrow ((k \leq 0) \Rightarrow (b@_0 = 0))$
 $\Rightarrow ((0 < k) \Rightarrow (b@_0 = \text{fib}(k - 1)))$
 $\Rightarrow (m = \text{fib}((n - 1) + k))\}$
 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. $(0 < k) \Rightarrow (b = \text{fib}(k - 1))$
 13. $\neg(k = 0)$
- $\vdash a + b = \text{fib}(k + 1)$
by (RecUnfold ‘fib’ 0)
CollapseTHEN (((if (0
) = 0 then SplitOnConclITE else SplitOnHypITE (0)).)
CollapseTHEN (Auto’).)

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14. $\neg(k + 1 = 0)$
 15. $\neg(k + 1 = 1)$
- $\vdash a + b = \text{fib}((k + 1) - 1) + \text{fib}((k + 1) - 2)$

http://www.nuprl.org/FDLcontent/p0_963683_/p25_528941_{less-fast-fib}1.2.1.2.1.1.2.html