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

1. n : $\mathbb{Z}$
2. $0 < n$
3. $\forall a, b$:$\mathbb{N}$.
   $\{m$:$\mathbb{N}$ |
   $\forall k$:$\mathbb{N}$.
   $(a = \mathrm{fib}(k))$
   $\Rightarrow ((k \leq 0) \Rightarrow (b = 0))$
   $\Rightarrow ((0 < k) \Rightarrow (b = \mathrm{fib}(k - 1)))$
   $\Rightarrow (m = \mathrm{fib}((n - 1)+k))\}$
4. a : $\mathbb{N}$
5. b : $\mathbb{N}$
6. $\forall b_1$:$\mathbb{N}$.
   $\{m$:$\mathbb{N}$ |
   $\forall k$:$\mathbb{N}$.
   $(a+b = \mathrm{fib}(k))$
   $\Rightarrow ((k \leq 0) \Rightarrow (b_1 = 0))$
   $\Rightarrow ((0 < k) \Rightarrow (b_1 = \mathrm{fib}(k - 1)))$
   $\Rightarrow (m = \mathrm{fib}((n - 1)+k))\}$
7. $\{m$:$\mathbb{N}$ |
   $\forall k$:$\mathbb{N}$.
   $(a+b = \mathrm{fib}(k))$
   $\Rightarrow ((k \leq 0) \Rightarrow (a = 0))$
   $\Rightarrow ((0 < k) \Rightarrow (a = \mathrm{fib}(k - 1)))$
   $\Rightarrow (m = \mathrm{fib}((n - 1)+k))\}$

$\vdash\{m$:$\mathbb{N}$ |
$\forall k$:$\mathbb{N}$.
$(a = \mathrm{fib}(k))$
$\Rightarrow ((k \leq 0) \Rightarrow (b = 0))$
$\Rightarrow ((0 < k) \Rightarrow (b = \mathrm{fib}(k - 1)))$
$\Rightarrow (m = \mathrm{fib}(n+k))\}$
by (D (-1))
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7. m : $\mathbb{N}$
8. $\forall k$:$\mathbb{N}$.
   $(a+b = \mathrm{fib}(k))$

$\Rightarrow ((k \leq 0) \Rightarrow (a = 0))$
$\Rightarrow ((0 < k) \Rightarrow (a = \mathrm{fib}(k \text{ - } 1)))$
$\Rightarrow (m = \mathrm{fib}((n \text{ - } 1)+k))$

9. $k : \mathbb{N}$
10. $a = \mathrm{fib}(k)$
11. $(k \leq 0) \Rightarrow (b = 0)$
12. $(0 < k) \Rightarrow (b = \mathrm{fib}(k \text{ - } 1))$

$\vdash m = \mathrm{fib}(n+k)$

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