Inference at $*$ 1 2 1 2 1
of proof for Lemma 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. $\forall b_1{:}\mathbb{N}.$
   $\{m{:}\mathbb{N} \mid$
   $\forall k{:}\mathbb{N}.$
   $(a+b = \text{fib}(k))$
   $\Rightarrow ((k \leq 0) \Rightarrow (b_1 = 0))$
   $\Rightarrow ((0 < k) \Rightarrow (b_1 = \text{fib}(k - 1)))$
   $\Rightarrow (m = \text{fib}((n - 1)+k))\}$
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. $(0 < k) \Rightarrow (b = \text{fib}(k - 1))$

$\vdash m = \text{fib}(n+k)$
by (InstHyp [k+1] 8)
CollapseTHEN (Auto')$\cdot$

1: . . . . .antecedent. . . . . NILNIL

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

.