```
factorial_via_iter_wf  THM

⊢  ∀k:ℕ. k! ∈ ℕ+   by Def of <nat>!
|
.....set predicate .....
1. k : ℕ
⊢  0<k!k  by ¬k!k = 0  Asserted ...ℕ
|
.....assertion .....
⊢  ¬k!k = 0  by Def of k!k
|
⊢  ¬(Π i:{k-k..k^-}. i+1) = 0
| by Rewrite by
|    Thm*  (Π i:{a..b^-}. e(i)) = 0 ⟺ (∃i:{a..b^-}. e(i) = 0)
|    {iter_prod_zero_iff_factor_zero} ...ℕ
|
⊢  ¬(∃i:{(k-k)..k^-}. i+1 = 0)  by Analyze ...wℕ
|
2. ∃i:{(k-k)..k^-}. i+1 = 0
⊢  False  by Analyze-1
|
2. i : {(k-k)..k^-}
3. i+1 = 0
⊢  False  by Autoℕ
END
```