```
sfa_doc_ycomb_typing_demo  COM

⊢  ∀T:Type. Y ∈ (∩k:ℕ. (ℕk→T)→ℕ(k+1)→T)→ℕ→T  by Analyze
|
1. T : Type
⊢  Y ∈ (∩k:ℕ. (ℕk→T)→ℕ(k+1)→T)→ℕ→T  by New:F FunExtensionality
|
|\
| .....wf .....
| ⊢  Y ∈ Void→Void  by Def
|
.\
. 2. F : ∩k:ℕ. (ℕk→T)→ℕ(k+1)→T
. ⊢  Y(F) ∈ ℕ→T  by ∀n:ℕ. Y(F) ∈ ℕn→T  Asserted
. |
. |\
. | .....assertion .....
. | ⊢  ∀n:ℕ. Y(F) ∈ ℕn→T  by NatInd Concl
. | |
. | |\
. | | .....basecase .....
. | | ⊢  Y(F) ∈ ℕ0→T  by <Unproved PREMISE>
. | |
. | .\
. | . .....upcase .....
. | . 3. n : ℤ
. | . 4. 0<n
. | . 5. Y(F) ∈ ℕ(n-1)→T
. | . ⊢  Y(F) ∈ ℕn→T  by FunExtensionality
. | . |
. | . 6. x : ℕn
. | . ⊢  Y(F,x) ∈ T  by Compute Y(F) *⇒ F(Y(F))
. | . |
. | . ⊢  F(Y(F),x) ∈ T
. | . | by F ∈ (∩k:ℕ. (ℕk→T)→ℕ(k+1)→T)  Asserted
. | . |    THEN
. | . |    Witness-1: n-1
. | . |
. | . 7. F ∈ (∩k:ℕ. (ℕk→T)→ℕ(k+1)→T)
. | . 8. F ∈ (ℕ(n-1)→T)→ℕ(n-1+1)→T
. | . ⊢  F(Y(F),x) ∈ T  by Auto
. |
. .\
. . 3. ∀n:ℕ. Y(F) ∈ ℕn→T
. . ⊢  Y(F) ∈ ℕ→T
. . | by With (ℕ0→T) FunExtensionality THENW BackThru: Hyp:3
. . |
. . 4. x : ℕ
. . ⊢  Y(F,x) ∈ T  by Witness3: x+1
END
```