```
nat_ind_tp  THM

⊢  ∀P:(ℕ→Prop). P(0) ⇒ (∀i:ℕ⁺. P(i-1) ⇒ P(i)) ⇒ (∀i:ℕ. P(i))
| by UnivCD
|
1. P : ℕ→Prop
2. P(0)
3. ∀i:ℕ⁺. P(i-1) ⇒ P(i)
4. i : ℕ
⊢  P(i)  by PushArgs [`hn`,(int_to_arg 4)]
|
.....main .....
⊢  P(i)
| by Analogy Tactic Directive: %S%
|
|    λp.AbSetHD (get_int_arg `hn` p) p
|
.....main .....
4. i : ℤ
5. i≥0
⊢  P(i)  by λp.IntInd (get_int_arg `hn` p) p
|
|\
| .....downcase .....
| 5. i<0
| 6. i+1≥0 ⇒ P(i+1)
| ⊢  i≥0 ⇒ P(i)  by Analyze 0
| |
| |\
| | .....main .....
| | 7. i≥0
| | ⊢  P(i)  by Arith
| |
| .\
| . .....wf .....
| . ⊢  (i≥0) ∈ Prop  by Repeat MemEqCD
|
|\
| .....basecase .....
| 3. ∀i:ℕ⁺. P(i-1) ⇒ P(i)
| ⊢  0≥0 ⇒ P(0)  by Analyze 0
| |
| |\
| | .....main .....
| | 4. 0≥0
| | ⊢  P(0)  by Thin -1 THEN AddHiddenLabel `basecase`
| | |
| | .....basecase .....
| | 3. ∀i:ℕ⁺. P(i-1) ⇒ P(i)
| | ⊢  P(0)
| |   by Analogy Tactic Directive: %E%
| |
| |      Hypothesis
| |
| .\
```

```
| . .....wf .....
| . ⊢  (0≥0) ∈ Prop  by MemEqCD THEN MemEqCD
|
.\
. .....upcase .....
. 5. 0<i
. 6. i-1≥0 ⇒ P(i-1)
. ⊢  i≥0 ⇒ P(i)  by Analyze 0
. |
. |\
. | .....main .....
. | 7. i≥0
. | ⊢  P(i)  by Thin -1 THEN Analyze -1
. | |
. | |\
. | | .....antecedent .....
. | | 5. 0<i
. | | ⊢  i-1≥0  by Arith
. | | |
. | | |\
. | | | .....wf .....
. | | | ⊢  i-1 ∈ ℤ  by Repeat Analyze
. | | |
. | | .\
. | | . .....wf .....
. | | . ⊢  0 ∈ ℤ  by Analyze
. | |
. | .\
. | . .....main .....
. | . 6. P(i-1)
. | . ⊢  P(i)  by AddHiddenLabel ‘upcase‘
. | . |
. | . .....upcase .....
. | . ⊢  P(i)
. | .   by Analogy Tactic Directive: %E%
. | .
. | .      BackThru 3
. |
. .\
. . .....wf .....
. . ⊢  (i≥0) ∈ Prop  by MemEqCD THEN MemEqCD
END
```