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int_segs_from_base_by_upper_ind  THM

⊢  ∀P:(ℤ→ℤ→Prop), a:ℤ.
|  (∀b:{...a}. P(a,b))
|  ⇒
|  (∀b:{a+1...}. (∀c:{a..b⁻}. P(a,c)) ⇒ P(a,b)) ⇒ (∀b:ℤ. P(a,b))
| by Auto THEN RemoveGuards Concl
|
1. P : ℤ→ℤ→Prop
2. a : ℤ
3. ∀b:{...a}. P(a,b)
4. ∀b:{a+1...}. (∀c:{a..b⁻}. P(a,c)) ⇒ P(a,b)
⊢  ∀b:ℤ. P(a,b)  by ∀b:{a...}. P(a,b)  Asserted
|
|\
| .....assertion .....
| ⊢  ∀b:{a...}. P(a,b)  by ∀k:ℕ, b:{a...}. b-a≤k ⇒ P(a,b)  Asserted
| |
| |\
| | .....assertion .....
| | ⊢  ∀k:ℕ, b:{a...}. b-a≤k ⇒ P(a,b)  by CompNatInd Concl
| | |
| | 5. k : ℕ
| | 6. ∀k1:ℕ. k1<k ⇒ (∀b:{a...}. b-a≤k1 ⇒ P(a,b))
| | 7. b : {a...}
| | 8. b-a≤k
| | ⊢  P(a,b)  by Decide: a<b
| | |
| | |\
| | | 9. a<b
| | | ⊢  P(a,b)  by BackThru: Hyp:4
| | | |
| | | 10. c : {a..b⁻}
| | | ⊢  P(a,c)  by BackThru: Hyp:6 Using:[k-1]
| | |
| | .\
| | . 9. ¬a<b
| | . ⊢  P(a,b)  by BackThru: Hyp:3
| |
| .\
| . 5. ∀k:ℕ, b:{a...}. b-a≤k ⇒ P(a,b)
| . ⊢  ∀b:{a...}. P(a,b)  by Auto THEN BackThru: Hyp:5 Using:[b-a]
|
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. 5. ∀b:{a...}. P(a,b)
. 6. b : ℤ
. ⊢  P(a,b)  by Decide: b≤a
. |
. |\
. | 7. b≤a
. | ⊢  P(a,b)  by BackThru: Hyp:3
. |
. .\
. . 7. ¬b≤a
. . ⊢  P(a,b)  by BackThru: Hyp:5
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END