```
factorial_via_intseg_step_rw  THM

⊢  ∀k:ℕ+. k! = k•(k-1)! ∈ ℕ
  by Auto
     THEN
     BackThru:
     Thm*  ∀k,n:ℕ. k = n+1 ⇒ k! = k•n! ∈ ℕ
     {factorial_via_intseg_step}
END
```