```
hpre_def  THM

⊢  all
|  (λm:hnum. equal
|            (pre(m)
|            ,cond(equal(m,0),0,select(λn:hnum. equal(m,suc(n))))))
| by Unab [‘pre‘;‘hpre‘] THEN HN THEN StrongAuto
|    THEN
|    Try (Complete (Unfold ‘label‘ 0))
|    THEN
|    Try (RW bool_to_propC -1)
|
1. m : ℕ
⊢  if m=₂0 then 0 else m-1 fi
|  =
|  if m =_b 0 then 0 else @_b n:ℕ. (m =_b (n+1)) fi
| by BifCase THEN Simp THEN StrongAuto
|
|\
| 1. m : ℕ
| 2. m = 0
| ⊢  0 = if m =_b 0 then 0 else @_b n:ℕ. (m =_b (n+1)) fi
|   by Subst ((m =_b 0) = true₂) 0 THEN Simp THEN StrongAuto
|
.\
. 1. m : ℕ
. 2. ¬m = 0
. ⊢  m-1 = if m =_b 0 then 0 else @_b n:ℕ. (m =_b (n+1)) fi
. | by Subst ((m =_b 0) = false₂) 0 THEN Simp THEN StrongAuto
. |
. |\
. | 1. m : ℕ
. | 2. ¬m = 0
. | ⊢  ¬m = 0
. | | by Simpsetp [‘bequal‘] THEN StrongAuto
. | |    THEN
. | |    Try (Complete (Unfold ‘label‘ 0))
. | |
. | 1. m : ℕ
. | 2. ¬m = 0
. | ⊢  ¬m = 0
. |   by Analyze 0 THEN StrongAuto
. |      THEN
. |      Try (Complete (Unfold ‘label‘ 0))
. |      THEN
. |      Analyze 2
. |      THEN
. |      StrongAuto
. |      THEN
. |      Try (Complete (Unfold ‘label‘ 0))
. |
. .\
. . 1. m : ℕ
. . 2. ¬m = 0
. . ⊢  m-1 = (@_b n:ℕ. (m =_b (n+1)))
```

```
. . | by Unab [`bchoose`] THEN ChooseDC THEN Simp THEN StrongAuto
. . |
. . 1. m : ℕ
. . 2. ¬m = 0
. . ⊢  ∃n:ℕ. m = n+1  by DTerm (m-1) 0 THEN Simp THEN StrongAuto
END
```