```
nonprime_nat  THM

⊢  ∀x:ℕ. ¬prime(x) ⟺ x<2 ∨ (∃i,j:{2..x⁻}. x = i·j)  by UnivCD
|
1. x : ℕ
⊢  ¬prime(x) ⟺ x<2 ∨ (∃i,j:{2..x⁻}. x = i·j)
| by Rewrite by
|    Thm*  ∀x:ℕ. prime(x) ⟺ 2≤x & ¬(∃i:{2..x⁻}. i | x)    {prime_nat}
|    THEN
|    Rewrite by
|    Thm*  Dec(A) ⇒ (¬(A & B) ⟺ ¬A ∨ ¬B)    {not_over_and}
|    THEN
|    Rewrite by Thm*  Dec(A) ⇒ (¬¬A ⟺ A)    {dneg_elim_a}
|
⊢  ¬2≤x ∨ (∃i:{2..x⁻}. i | x) ⟺ x<2 ∨ (∃i,j:{2..x⁻}. x = i·j)
| by Auto THEN SimilarTo: Hyp:-1
|
.....wf .....
2. i : {2..x⁻}
3. c : ℤ
4. x = i·c
⊢  c ∈ {2..x⁻}
| by Inst:
|    Thm*  ∀k:ℕ⁺, i:{2..k⁻}, j:ℤ. i·j = k ⇒ 2 ≤ j < k & i<k
|    {factors_smaller2}
|    Using:[x | i | c]
|
5. 2 ≤ c < x & i<x
⊢  c ∈ {2..x⁻}  by Auto
END
```