```
next_nat_pair_not_zeroes  THM

⊢  ∀xy:(ℕ×ℕ). ¬<0,0> = next_nat_pair(xy) ∈ ℕ×ℕ
| by Def of ¬<prop> THEN New:[x | y] Analyze1
|
1. x : ℕ
2. y : ℕ
3. <0,0> = next_nat_pair(<x,y>) ∈ ℕ×ℕ
⊢  False
| by Compute-1
|      ⌈⌈next_nat_pair⌉(<x,y>)⌉ *⟹ if x2=_2 0⟶ <0,x+1> else <x+1,y-1> fi
|    THEN
|    SplitITE Hyp:-1
|
|\
| .....truecase .....
| 3. <0,0> = <0,x+1> ∈ ℕ×ℕ
| ⊢  False  by Analyze-1 THEN OnAllHyps Reduce
|
.\
. .....falsecase .....
. 3. <0,0> = <x+1,y-1> ∈ ℕ×ℕ
. ⊢  False  by Analyze-1 THEN OnAllHyps Reduce
END
```