```
pos_states  THM

⊢  ∀Auto:Automata(Alph;St). Fin(St) ⇒ (∃n:ℕ+. #(St)=n )  by RepD
|
1. Alph : Type
2. St : Type
3. Automata(Alph;St)
4. Fin(St)
⊢  ∃n:ℕ+. #(St)=n
| by (Analyze 4
|      THEN
|      RWH
|      (LemmaC
|       Thm* (∃f:(A→B). Bij(A; B; f)) ⟺ (A ∼ B)
|       {bij_iff_1_1_corr})
|      5)
|     THEN
|     (Inst Thm* (T ∼ S) ⇒ (S ∼ T)    {one_one_sym} [ℕn;St])
|
4. n : ℕ
5. ℕn ∼ St
6. St ∼ ℕn
⊢   by Unfold `card` 0 THEN InstConcl [n]
|
.....set predicate .....
⊢  0<n  by Decide (n = 0)
|
7. n = 0
⊢   by Analyze 6 THEN Assert (InitialState(Auto) ∈ St)
|
6. f : St→ℕn
7. ∃g:(ℕn→St). InvFuns(St; ℕn; f; g)
8. n = 0
9. InitialState(Auto) ∈ St
⊢   by Assert (f(InitialState(Auto)) ∈ ℕ0)
END
```