```
lang_auto_lem  THM

⊢  ∀L:LangOver(Alph), g:((x,y:Alph*//(x L-induced Equiv y))→𝔹).
|  (∀l:Alph*. L(l) ⟺ g(l)) ⇒ LangOf(A(g)) = L
| by Analyze 0 THEN Analyze 0
|
1. Alph : Type
2. L : LangOver(Alph)
⊢  ∀g:((x,y:Alph*//(x L-induced Equiv y))→𝔹).
|  (∀l:Alph*. L(l) ⟺ g(l)) ⇒ LangOf(A(g)) = L
| by Inst
|     Thm* ∀L:LangOver(A). EquivRel x,y:A*. x L-induced Equiv y
|     {lang_rel_equi}
|     [Alph;L]
|
3. EquivRel x,y:Alph*. x L-induced Equiv y
⊢   by Assert (L ∈ Alph*→Prop)
|
|\
| .....assertion .....
| ⊢  L ∈ Alph*→Prop  by Fold ‘languages‘ 0
|
.\
. 4. L ∈ Alph*→Prop
. ⊢   by Auto
. |
. 5. g : (x,y:Alph*//(x L-induced Equiv y))→𝔹
. 6. ∀l:Alph*. L(l) ⟺ g(l)
. ⊢  LangOf(A(g)) = L  by Unfold ‘lang_eq‘ 0
. |
. ⊢  ∀l:Alph*. LangOf(A(g))(l) ⟺ L(l)  by Analyze 0
. |
. 7. l : Alph*
. ⊢  LangOf(A(g))(l) ⟺ L(l)  by Unfold ‘auto_lang‘ 0 THEN Reduce 0
. |
. ⊢  A(g)(l)↓ ⟺ L(l)  by Unfold ‘accept_list‘ 0
. |
. ⊢  FinalState(A(g))(Result(A(g))l) ⟺ L(l)
. | by RWH
. |     (LemmaC
. |      Thm* ∀L:LangOver(Alph)
. |           , g:((x,y:Alph*//(x L-induced Equiv y))→𝔹), l:Alph*.
. |           (Result(A(g))l) = l ∈ x,y:Alph*//(x L-induced Equiv y)
. |      {lang_auto_compute})
. |     0
. |
. ⊢  FinalState(A(g))(l) ⟺ L(l)  by Unfold ‘DA_fin‘ 0
. |
. ⊢  2of(2of(A(g)))(l) ⟺ L(l)  by Unfold ‘lang_auto‘ 0
. |
. ⊢  2of(2of(<(λs,a. a.s),nil,g>))(l) ⟺ L(l)  by Reduce 0
. |
. ⊢  g(l) ⟺ L(l)  by RWH (HypC 6) 0
END
```