```
homo_step  THM

⊢  ∀Auto:Automata(Alph;St)
|  , g:((x,y:Alph*//(x LangOf(Auto)-induced Equiv y))→𝔹)
|  , c:(St→Alph*).
|  (∀q:St. (Result(Auto)c(q)) = q) ⇒
|  (∀q:St, a:Alph.
|   c(δAuto(q,a))
|   =
|   δA(g)(c(q),a)
|   ∈ x,y:Alph*//(x LangOf(Auto)-induced Equiv y))
| by Analyze 0 THEN Analyze 0 THEN Analyze 0
|
1. Alph : Type
2. St : Type
3. Auto : Automata(Alph;St)
⊢  ∀g:((x,y:Alph*//(x LangOf(Auto)-induced Equiv y))→𝔹)
|  , c:(St→Alph*).
|  (∀q:St. (Result(Auto)c(q)) = q) ⇒
|  (∀q:St, a:Alph. c(δAuto(q,a)) = δA(g)(c(q),a))
| by Inst
|    Thm* ∀L:LangOver(A). EquivRel x,y:A*. x L-induced Equiv y
|    {lang_rel_equi}
|    [Alph;LangOf(Auto)]
|
4. EquivRel x,y:Alph*. x LangOf(Auto)-induced Equiv y
⊢   by UnivCD
|
5. g : (x,y:Alph*//(x LangOf(Auto)-induced Equiv y))→𝔹
6. c : St→Alph*
7. ∀q:St. (Result(Auto)c(q)) = q
8. q : St
9. a : Alph
⊢  c(δAuto(q,a)) = δA(g)(c(q),a)  by InstHyp [Result(Auto)a.c(q)] 7
|
10. (Result(Auto)c(Result(Auto)a.c(q))) = (Result(Auto)a.c(q))
⊢
| by Inst
|    Thm* ∀Auto:Automata(Alph;St)
|         , g:((x,y:Alph*//(x LangOf(Auto)-induced Equiv y))→𝔹).
|         Auto ⊆ A(g)
|    {lang_auto_is_min}
|    [Alph;St;Auto;g]
|
11. Auto ⊆ A(g)
⊢   by Unfold `refine` 11 THEN FwdThru 11 [10]
|
11. ∀x,y:Alph*.
|   (Result(Auto)x) = (Result(Auto)y) ⇒
|   (Result(A(g))x) = (Result(A(g))y)
12. (Result(A(g))c(Result(Auto)a.c(q))) = (Result(A(g))a.c(q))
⊢
| by RWH
|    (LemmaC
|     Thm* ∀L:LangOver(Alph), g:((x,y:Alph*//(x L-induced Equiv y))→
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|                                 𝔹)
|          , l:Alph*.
|          (Result(A(g))l) = l ∈ x,y:Alph*//(x L-induced Equiv y)
|     {lang_auto_compute})
|    12
|
12. c(Result(Auto)a.c(q)) = a.c(q)
⊢   by RecUnfold ‘compute_list‘ 12 THEN Reduce 12
|
12. c(δAuto((Result(Auto)c(q)),a)) = a.c(q)
⊢   by RWH (HypC 7) 12
|
12. c(δAuto(q,a)) = a.c(q)
⊢   by Unfold ‘lang_auto‘ 0
|
⊢  c(δAuto(q,a)) = δ<(λs,a. a.s),nil,g>(c(q),a)  by Reduce 0
END
```