```
depthfirst_induction  THM

⊢  For any graph
   ∀the_obj:GraphObject(the_graph), P:(Traversal→Prop).
   P(nil)
   ⇒
   (∀s:Traversal, i:V. P(s) ⇒ P(dfs(the_obj;s;i)))
   ⇒
   P(depthfirst(the_obj))
  by Auto
     THEN
     (Inst
      Thm* For any graph
           ∀the_obj:GraphObject(the_graph).
           ∃L:V List.
           no_repeats(V;L)
           & (∀y:V. (y ∈ L))
           & depthfirst(the_obj) = dfsl(the_obj;L)
      {depthfirst_DASH_dfsl}
      [the_graph;the_obj])
     THEN
     ExRepD
     THEN
     (HypSubst -1 0)
     THEN
     (Inst Thm: dfsl_DASH_induction1 [the_graph;the_obj;λ2l,s. P(s)])
     THEN
     EasyHyp
END
```