```
topsort-exists  THM

⊢  For any graph
   ∀the_obj:GraphObject(the_graph).
   ∃L:V List.
   (non-trivial-loop-free(the_graph) ⇒ topsorted(the_graph;L))
   & (∀i:V. (i ∈ L))
   & no_repeats(V;L)
  by Auto THEN (InstConcl [topsort(the_obj)])
     THEN
     (Inst
      Thm* For any graph
           ∀the_obj:GraphObject(the_graph).
           (non-trivial-loop-free(the_graph)
            ⇒
            topsorted(the_graph;topsort(the_obj)))
           & (∀i:V. (i ∈ topsort(the_obj)))
           & no_repeats(V;topsort(the_obj))
      {topsort_DASH_properties}
      [the_graph;the_obj])
END
```