

**function** HIERARCHICAL-SEARCH(*problem, hierarchy*) **returns** a solution or *failure*

*frontier*  $\leftarrow$  a FIFO queue with [*Act*] as the only element

**while** *true* **do**

**if** IS-EMPTY(*frontier*) **then return** *failure*

*plan*  $\leftarrow$  POP(*frontier*)           // chooses the shallowest plan in *frontier*

*hla*  $\leftarrow$  the first HLA in *plan*, or *null* if none

*prefix, suffix*  $\leftarrow$  the action subsequences before and after *hla* in *plan*

*outcome*  $\leftarrow$  RESULT(*problem*.INITIAL, *prefix*)

**if** *hla* is *null* **then**           // so *plan* is primitive and *outcome* is its result

**if** *problem*.IS-GOAL(*outcome*) **then return** *plan*

**else for each** *sequence* **in** REFINEMENTS(*hla, outcome, hierarchy*) **do**

        add APPEND(*prefix, sequence, suffix*) to *frontier*