function VITERBI(*observations* of len T,*state-graph*) **returns** *best-path*

num-states $\leftarrow$ NUM-OF-STATES(*state-graph*)
Create a path probability matrix *viterbi[num-states+2,T+2]*
viterbi[0,0] $\leftarrow$ 1.0
for each time step t **from** 0 **to** T **do**
  for each state s **from** 0 **to** *num-states* **do**
    for each transition s' from s specified by *state-graph*
      new-score $\leftarrow$ *viterbi*$[s, t]$ * $a[s,s']$ * $b_{s'}(o_t)$
      if ((*viterbi*$[s',t+1] = 0$) || (*new-score* $>$ *viterbi*$[s', t+1]$))
        then
          viterbi$[s', t+1] \leftarrow$ *new-score*
          back-pointer$[s', t+1] \leftarrow s$
Backtrace from highest probability state in the final column of *viterbi[]* and return path