

**Algorithm Design**  
***M. T. Goodrich and R. Tamassia***  
John Wiley & Sons  
**Solution of Exercise C-12.10**

We can use a binary search to locate  $q$ . The important observation is that the segments in  $S$  are ordered left to right. So, given any segment  $s_i$  in  $S$ , we can in constant time determine if  $q$  is to the left or right of  $s_i$ , which in turn determines if we should continue searching among the segments to the left or right of  $s_i$ . Thus, we can ultimately locate the segment immediately right of  $q$  (if it exists) in  $O(\log n)$  time.