

# Advanced Balanced Search Tree

Segment Tree

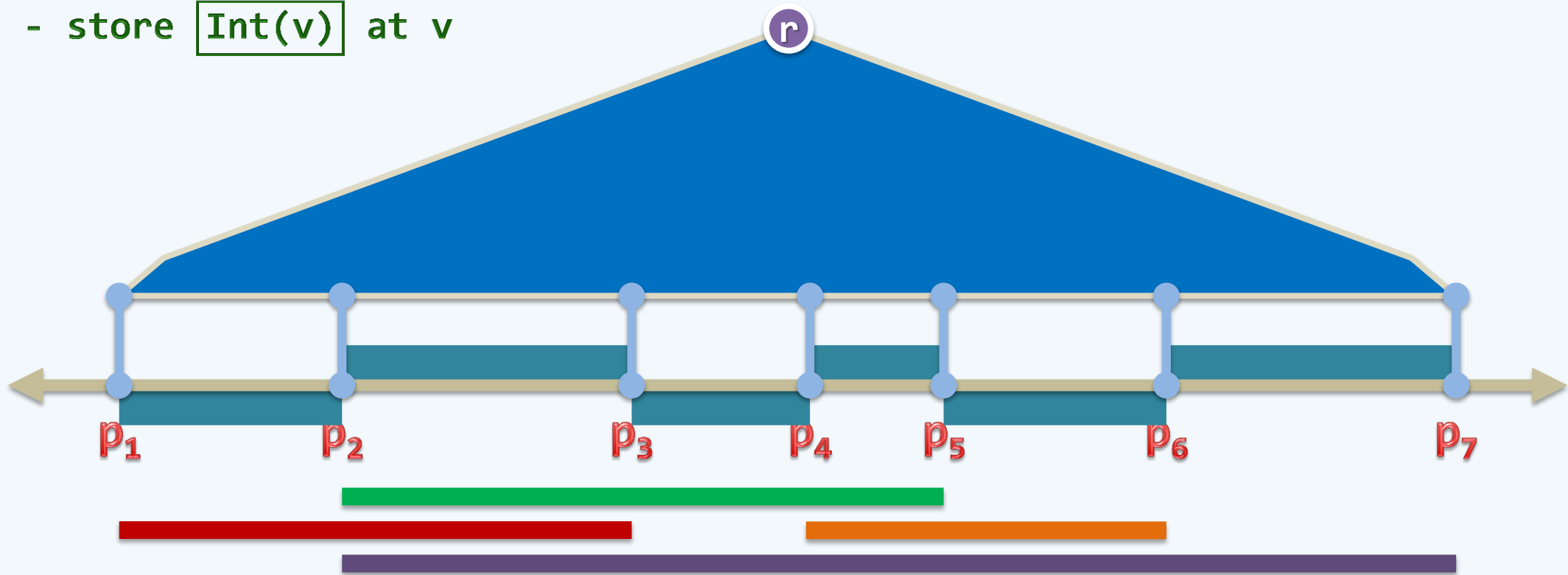
BBST

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## Replacing The Sorted Vector With A BBST

- ❖ For each leaf  $v$ ,
  - denote the corresponding elementary interval as  $\boxed{\text{EI}(v)}$
  - denote the subset of intervals containing  $\boxed{\text{EI}(v)}$  as  $\boxed{\text{Int}(v)}$  and
  - store  $\boxed{\text{Int}(v)}$  at  $v$



## 1D Stabbing Query

❖ To find all intervals containing  $q_x$ , we can

- find the  $EI(v)$  containing  $q_x$

//  $O(\log n)$  time for a BBST

- and then report  $Int(v)$

//  $O(1 + k)$  time

