

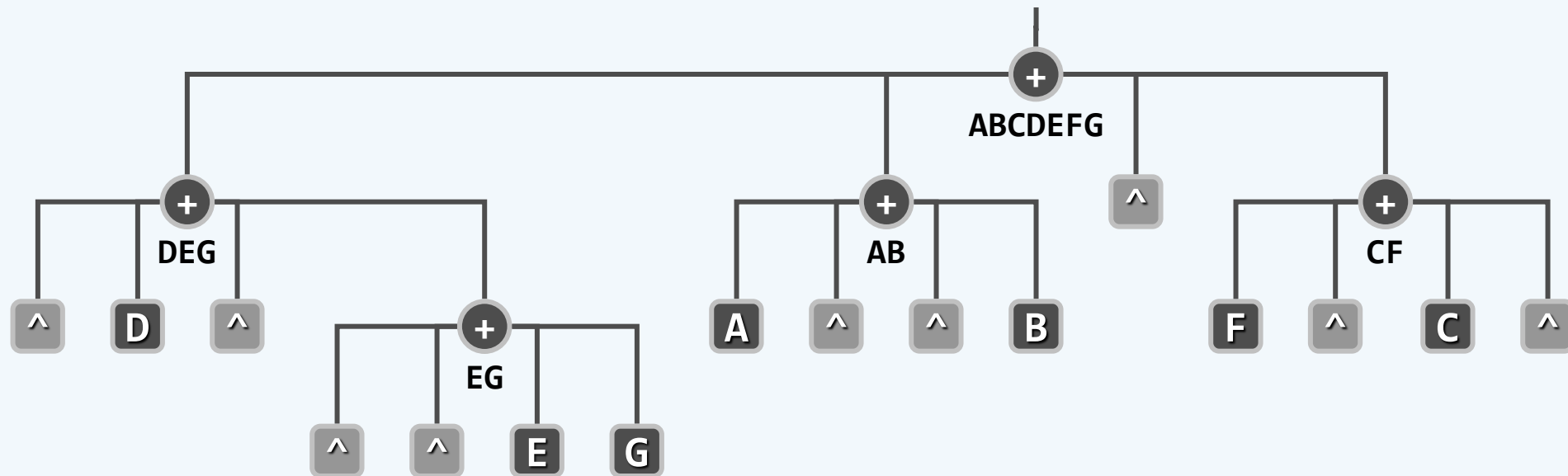
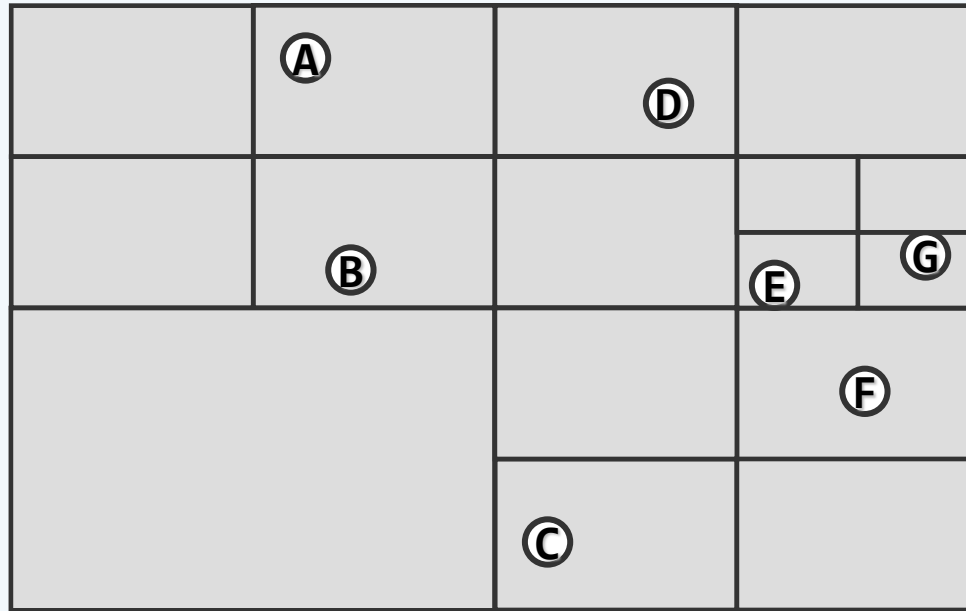
## 8. 高级搜索树

(xc) 更多变种

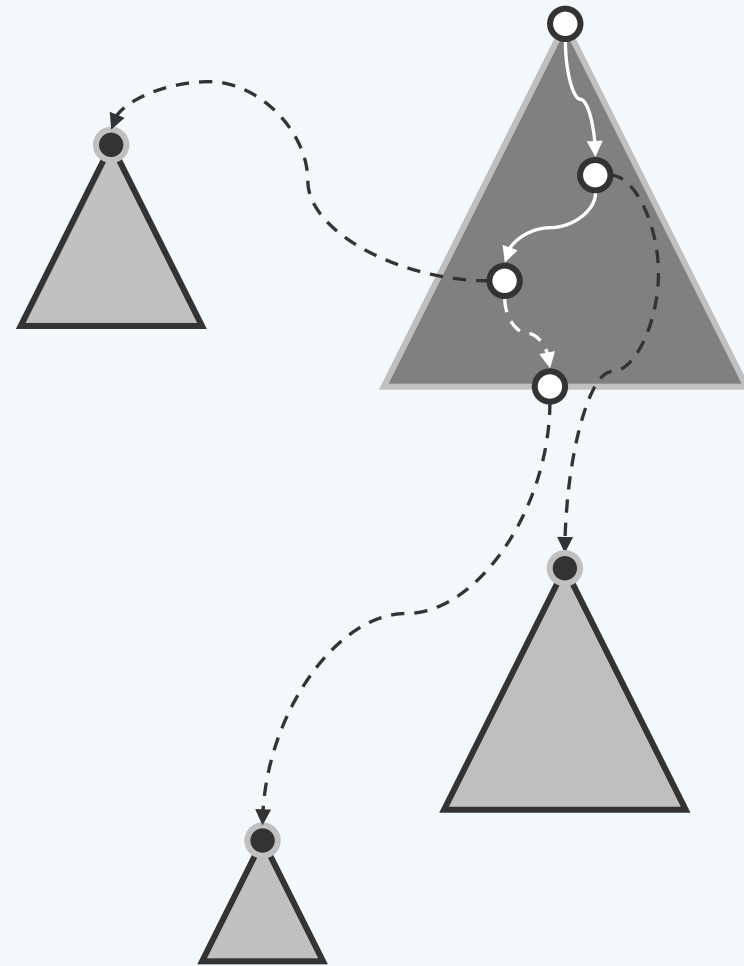
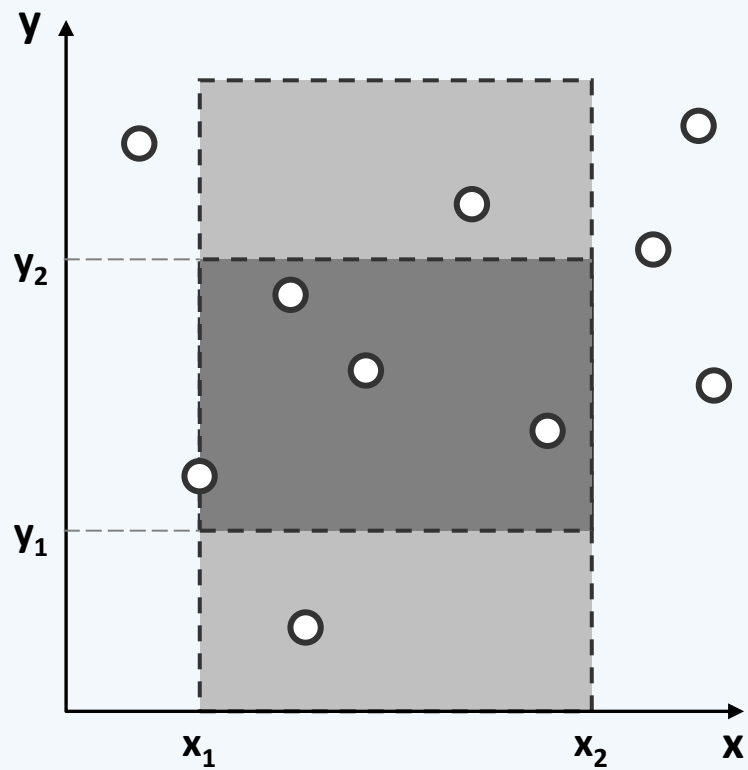
邓俊辉

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# Quadtree



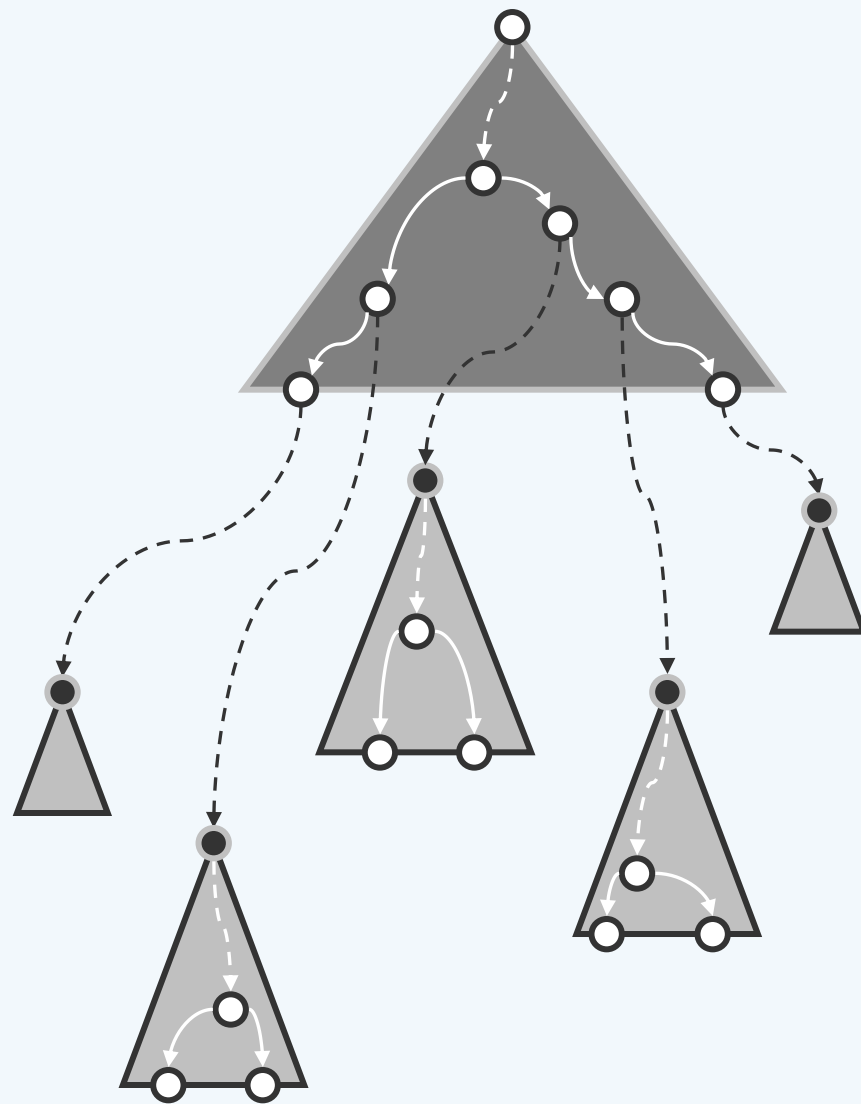
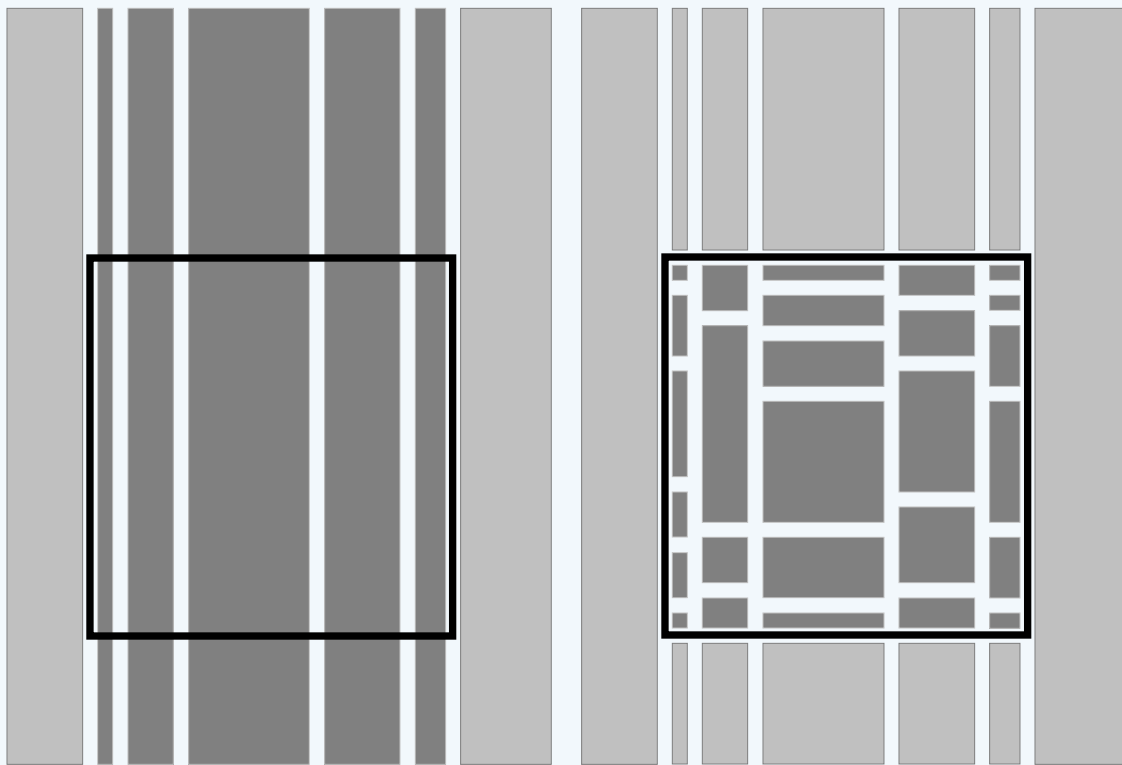
## Range Tree



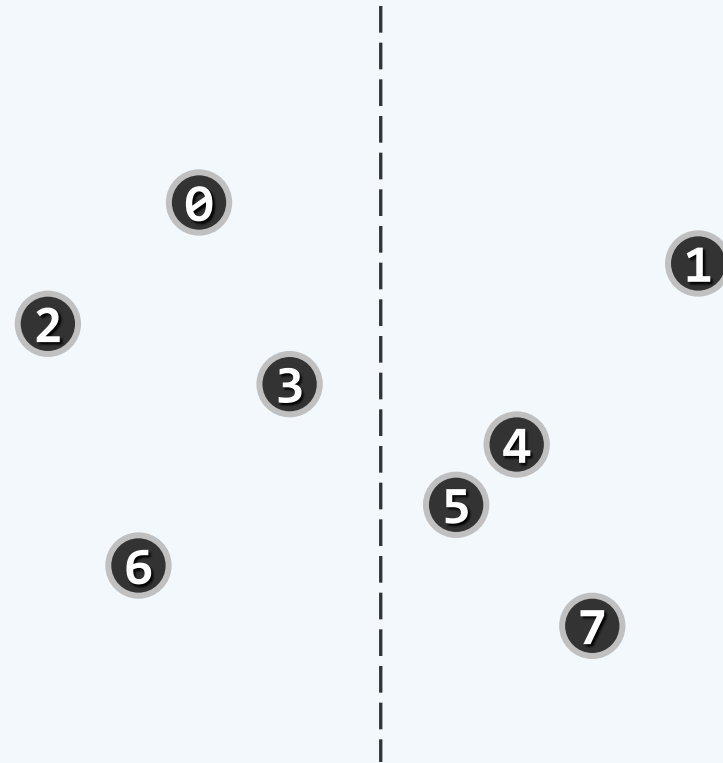
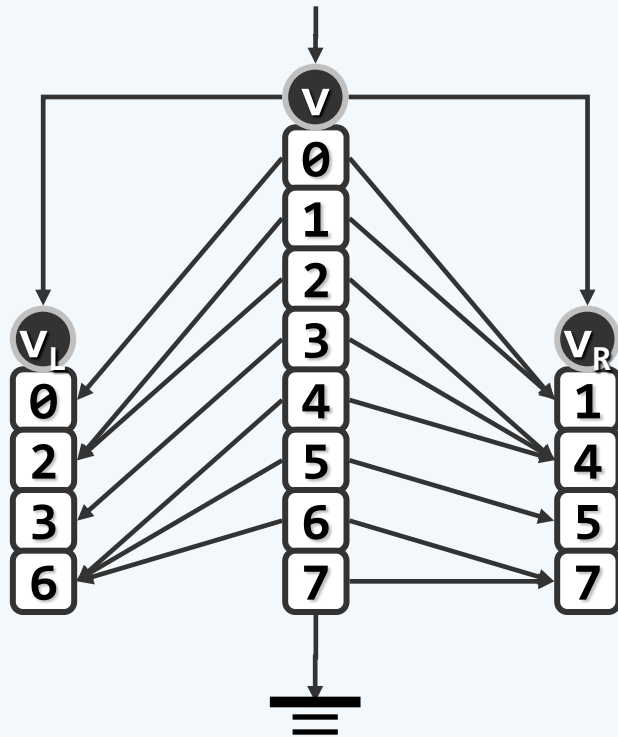
## Range Tree

❖ 空间 :  $O(n \log n)$

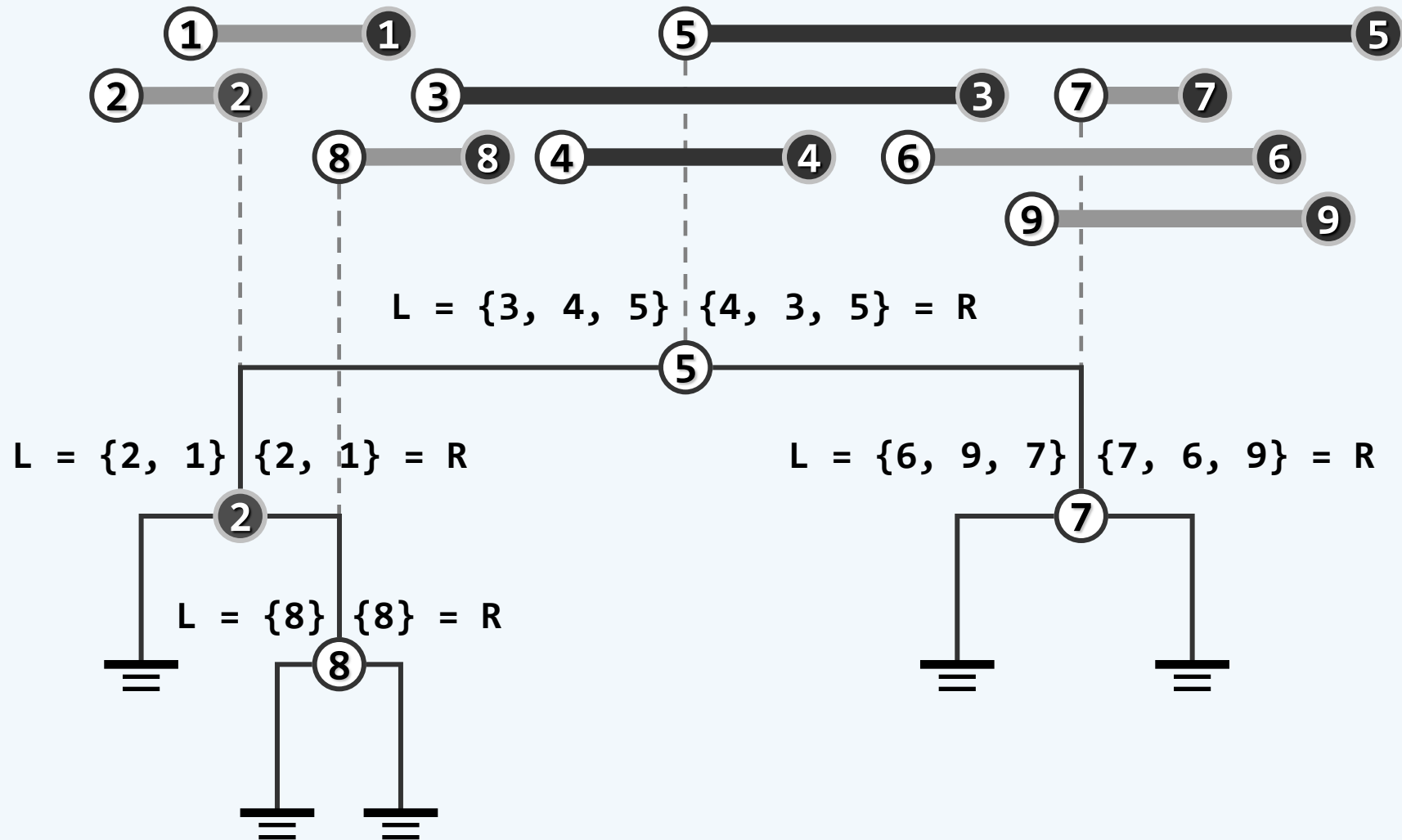
❖ 时间 :  $O(r + \log^2 n) \sim O(r + \log n)$



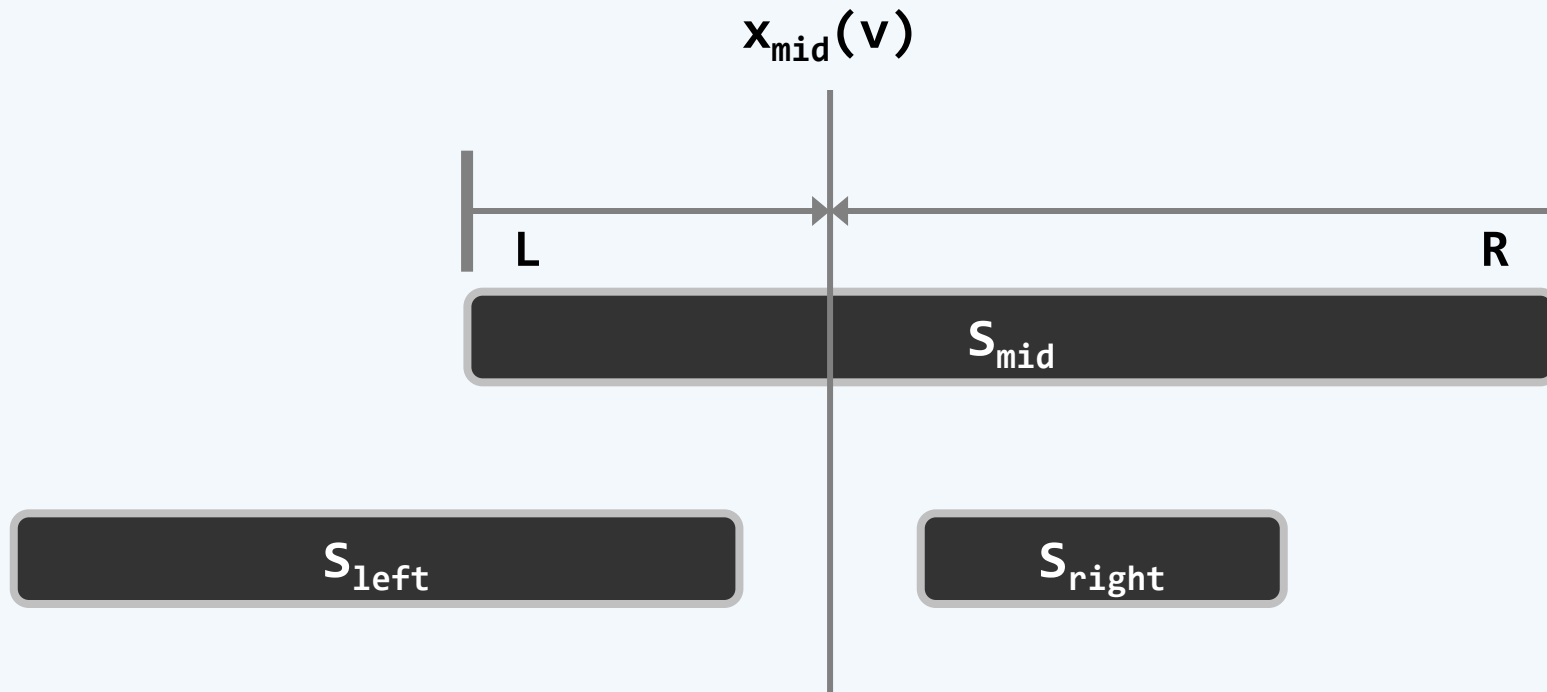
# Range Tree



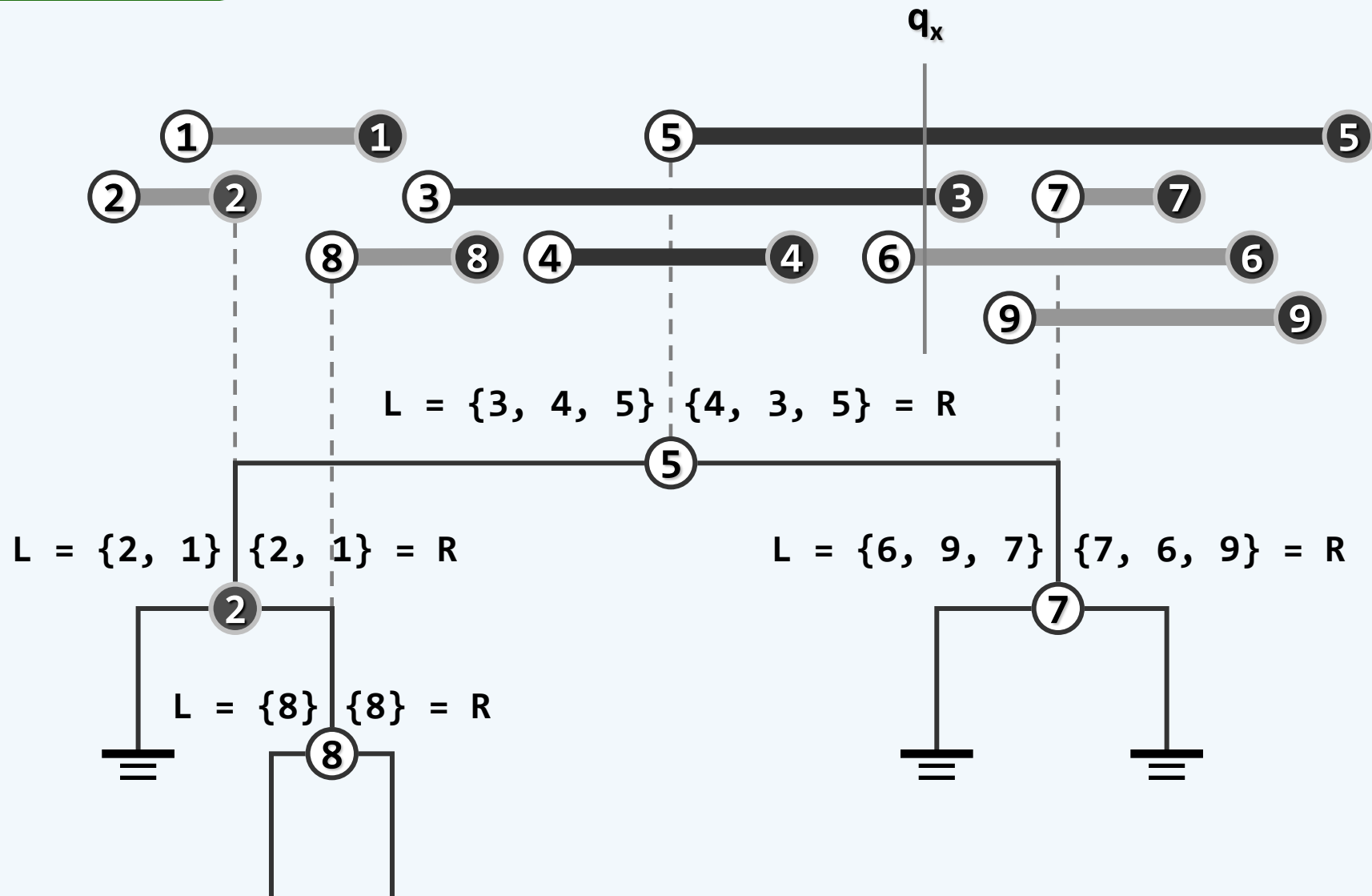
## Interval Tree



# Interval Tree

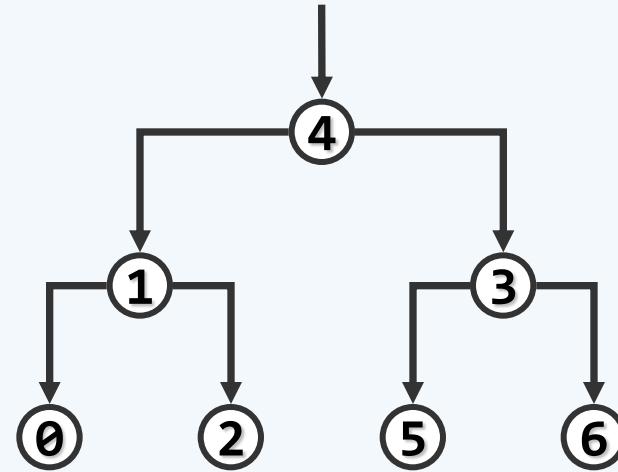
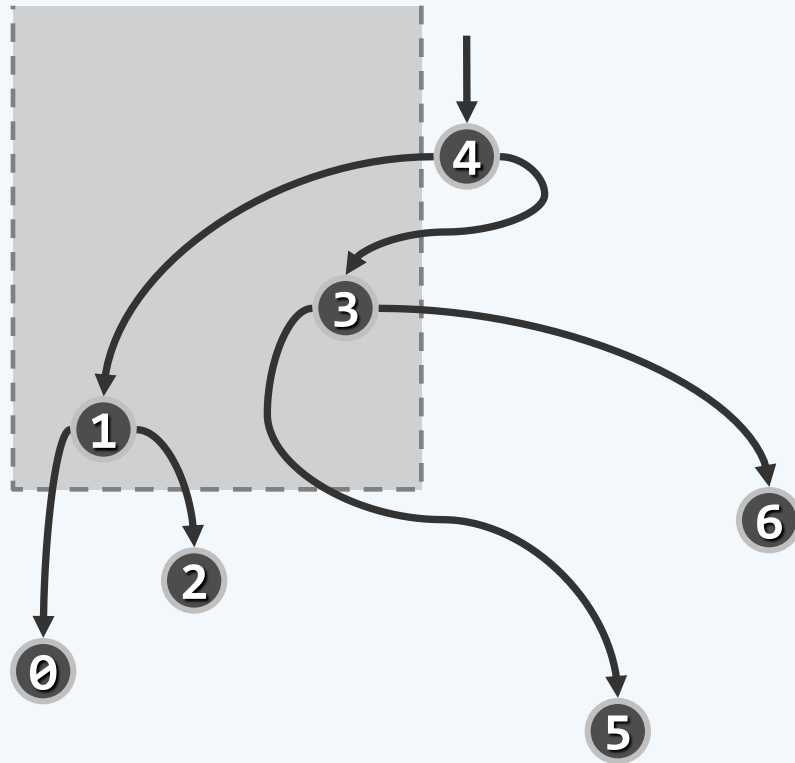


# Interval Tree



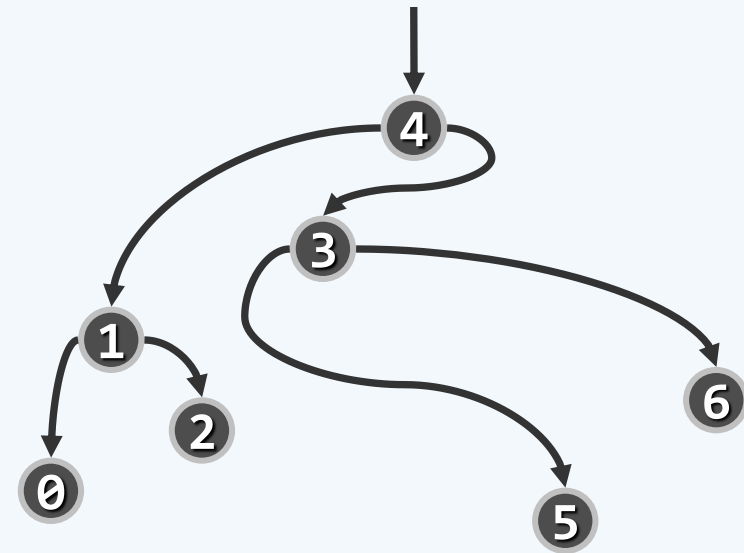
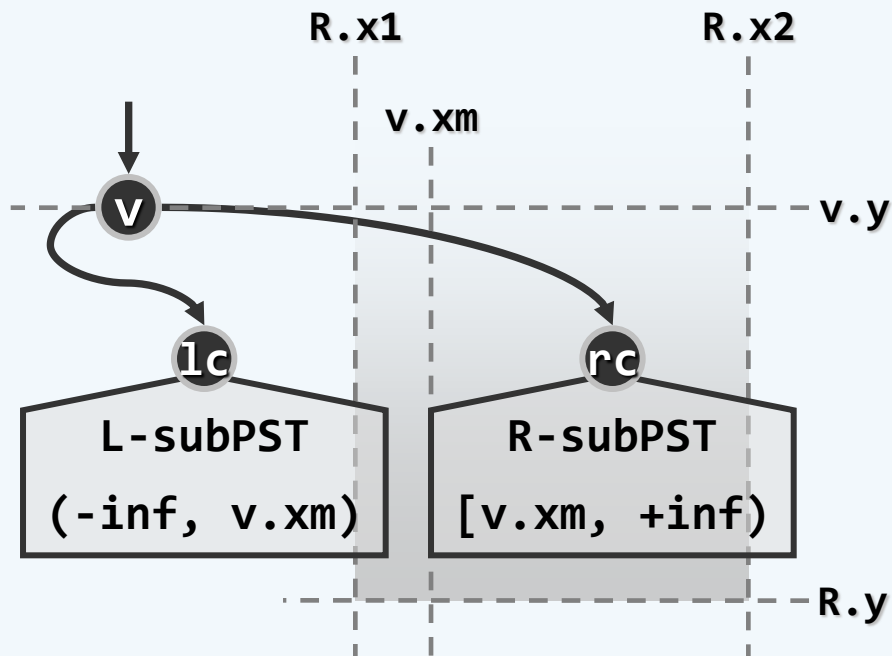


## Priority Search Tree

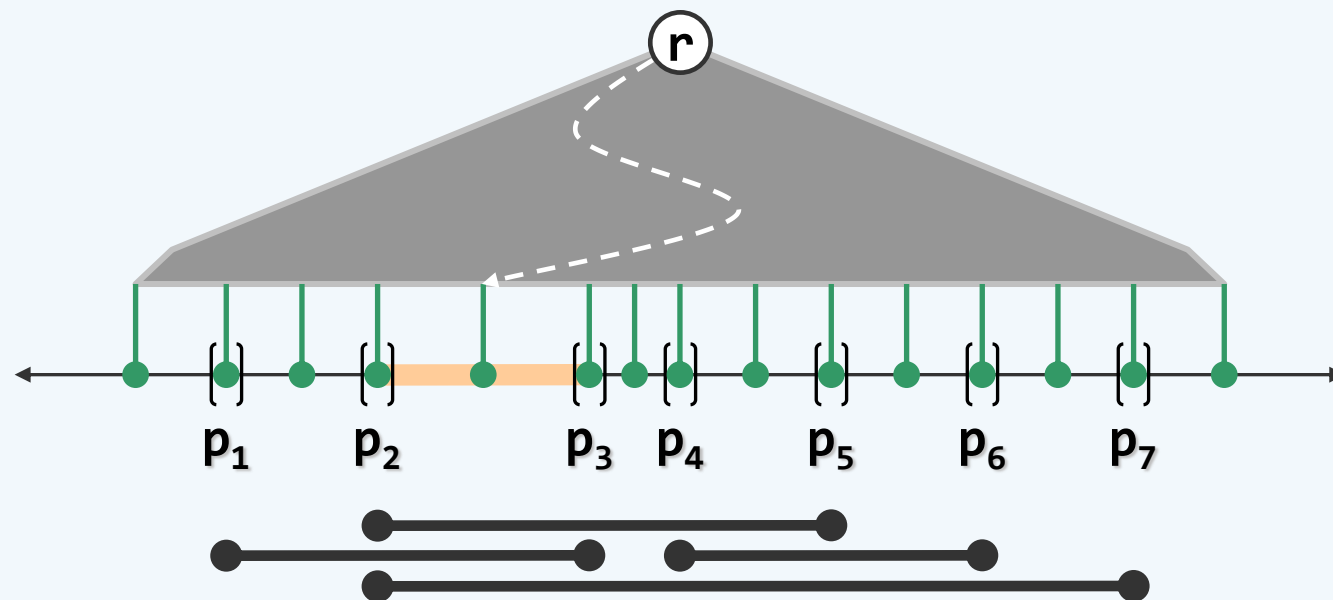


## Priority Search Tree

```
❖ queryPST( PSTNode v, SemiInfRange R ) {  
    if ( !v || (R.y < v.y) ) return; //prune  
    if ( (R.x1 < v.x) && (v.x < R.x2) ) output(v); //hit  
    if ( (R.x1 < v.xm) queryPST( v.lc, R ); //recursion  
    if ( (v.xm <= R.x2) queryPST( v.rc, R ); //recursion  
}
```



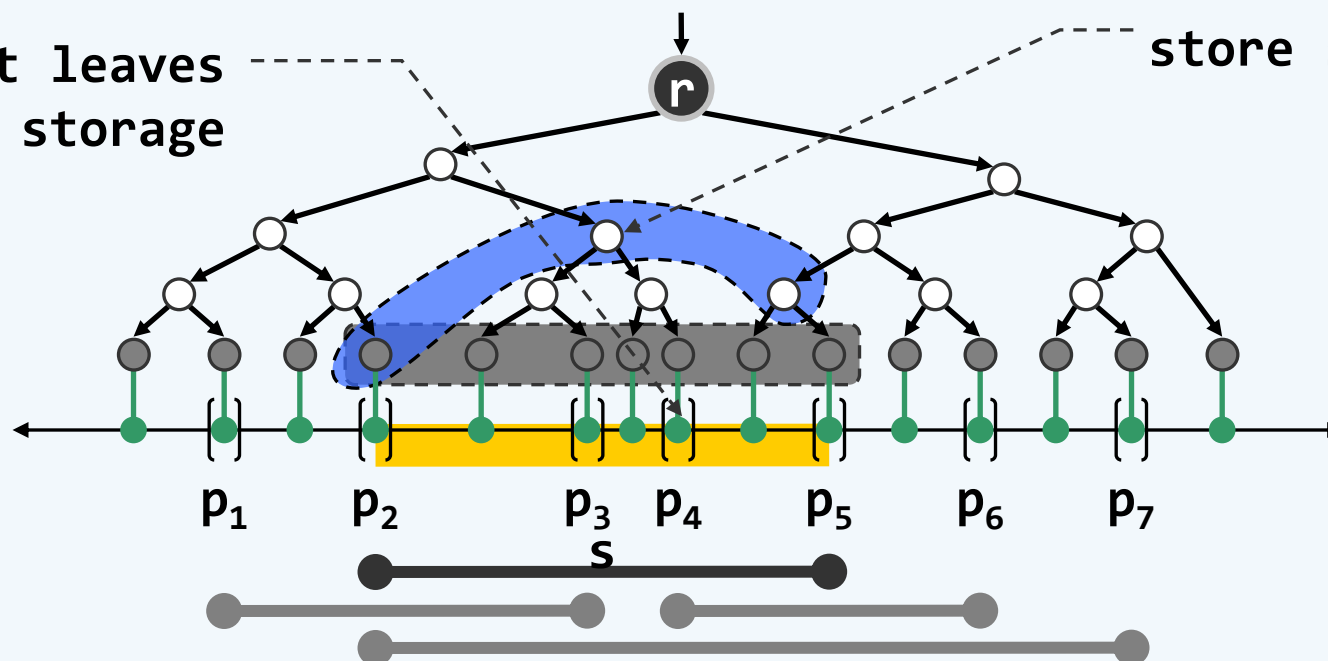
# Segment Tree



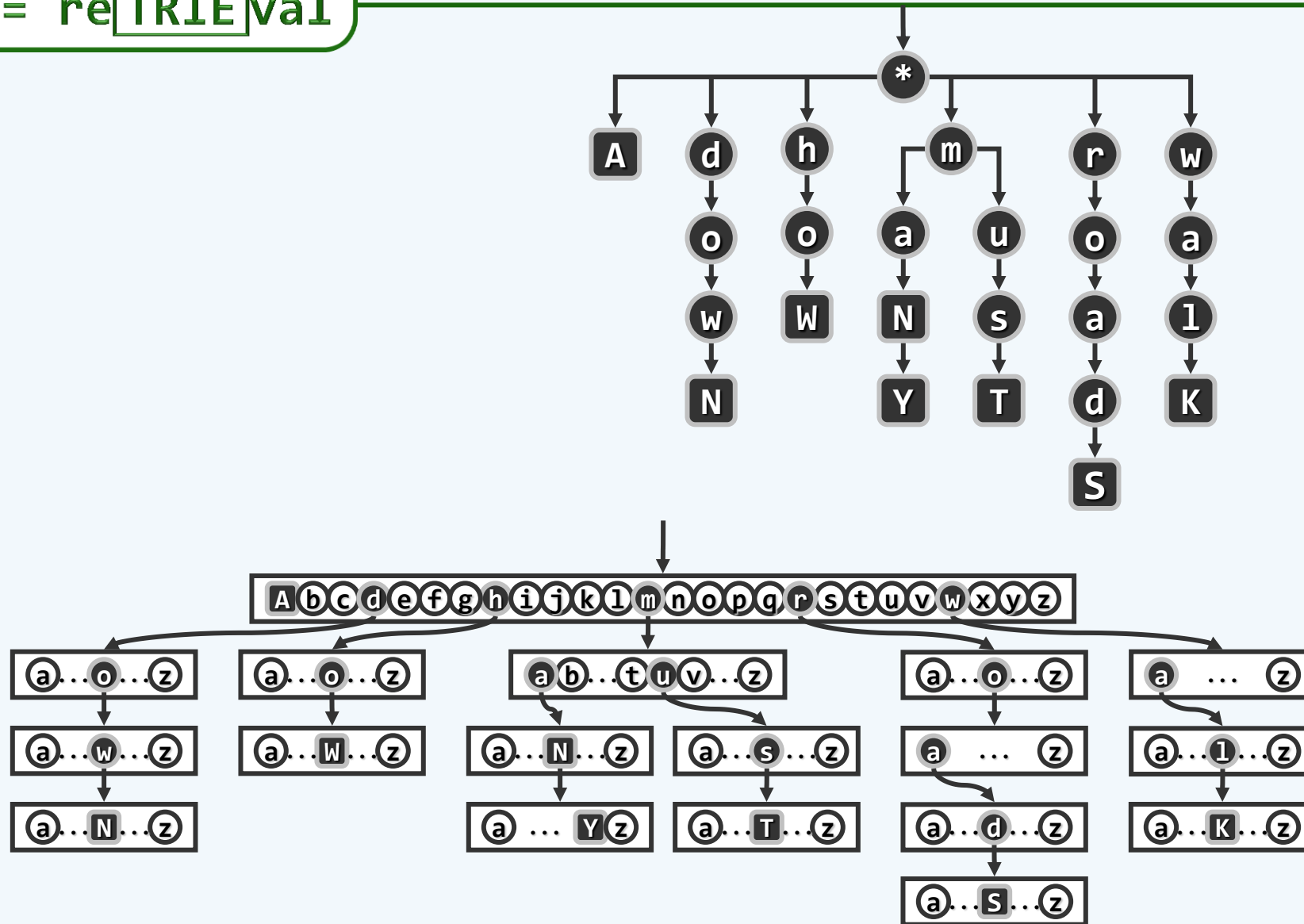
# Segment Tree

storing  $s$  at leaves  
needs too much storage

store  $s$  at LCA



Trie = re**TRIE**val



## Trie: PATRICIA Tree & Ternary Trie

