

## SPLAY TREES

- BASED ON BINARY SEARCH TREES
- PLUS A SET OF SPLAY OPERATIONS.

OPERATION STARTS AT A SPLAY NODE

SPLAY NODE WILL END AT ROOT OF TREE

SPLAY NODE: "AFTER INSERT, DELETE, MEMBERSHIP"

Highest level (i.e., deepest) node, in the resulting tree, that was examined (i.e., a comparison was done with the key in this node, the node was newly created, the node was removed, or we moved to the left or right child of the node) during the dictionary operation.

splay operation: Sequence of splay steps.

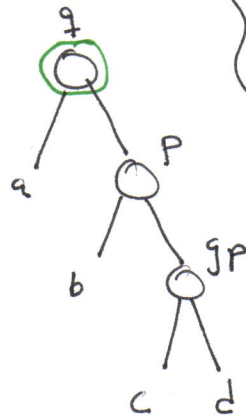
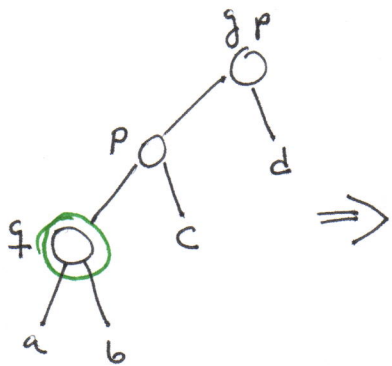
Splay step:  $\left\{ \begin{array}{l} \text{"Empty"} \text{ if splay node is root.} \\ \text{move splay node 1 or 2 levels} \quad \text{.O.W.} \end{array} \right.$

Two-Level step      Level of splay node  $> 2$

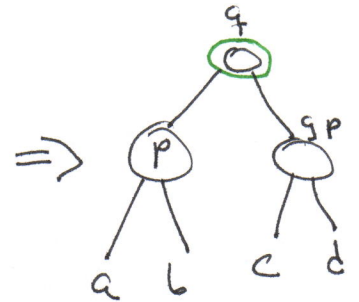
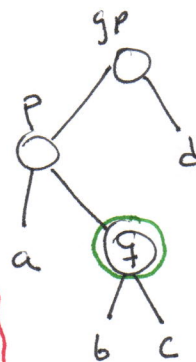
One-Level step      O.W.

many Two-level and then at most one-level step.

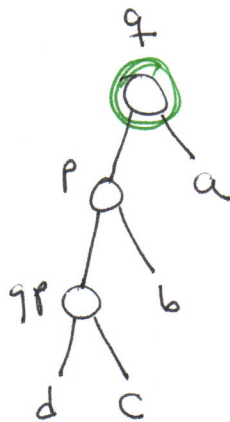
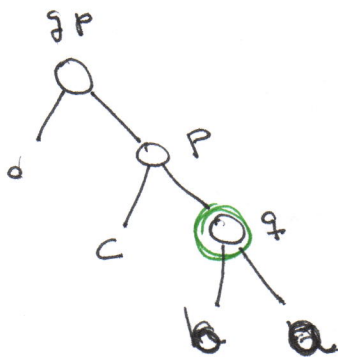
Type LL  
(Splay node: f)



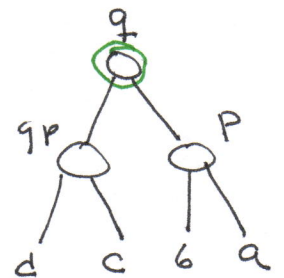
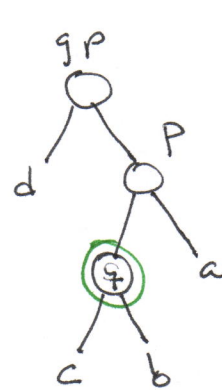
Type LR  
(Splay node: f)



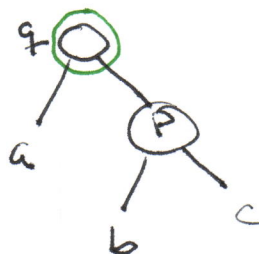
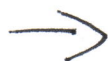
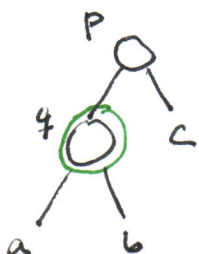
Type RR  
(Splay node: f)



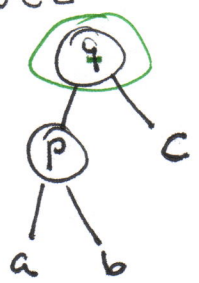
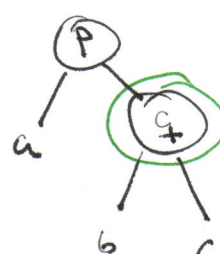
Type RL  
(Splay node: f)

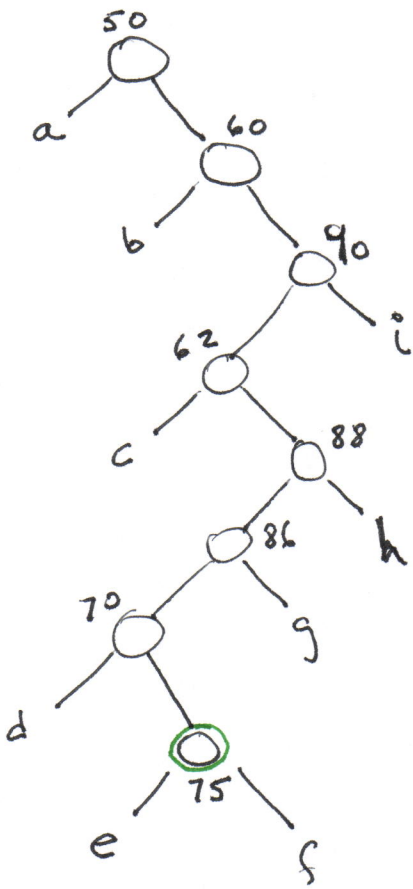


ONE LEVEL  
"L"



ONE LEVEL  
"R"





LR

