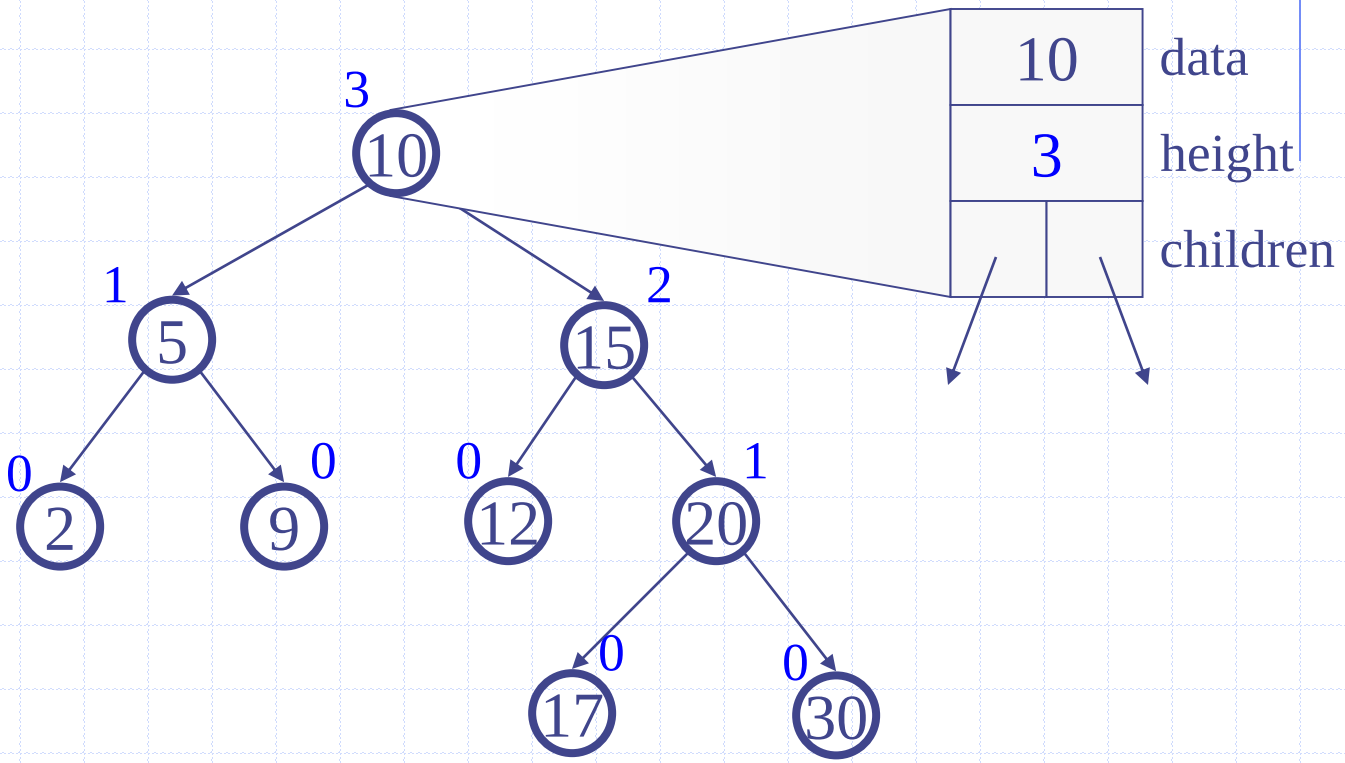
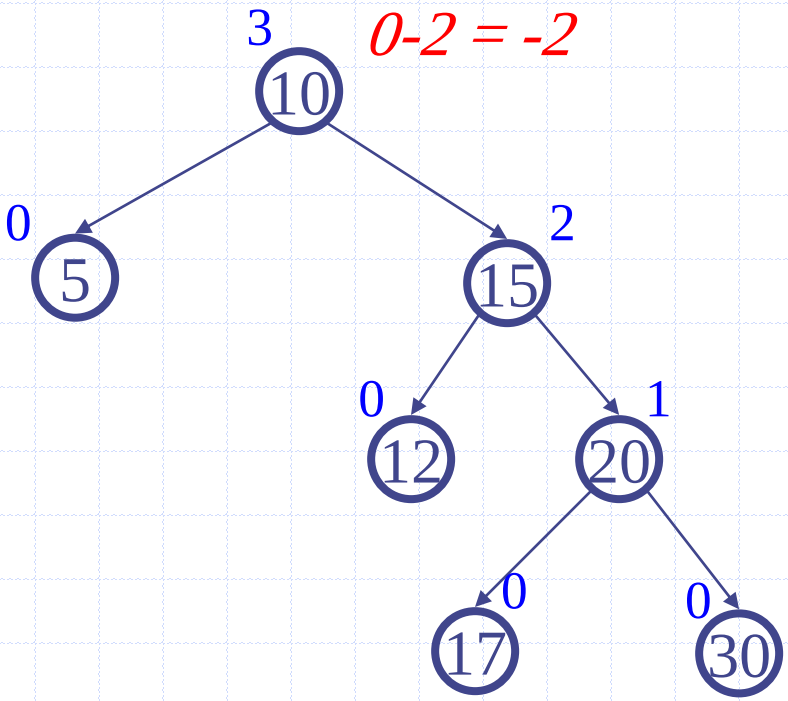
AVL Trees

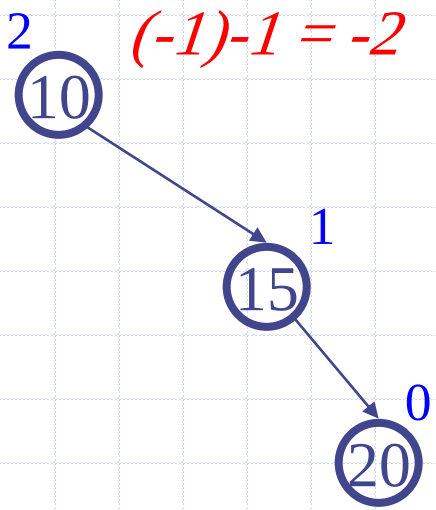
https://courses.cs.washington.edu/courses/cse326/01au/lectures/AVLTrees.ppt

An AVL Tree



Not AVL Trees

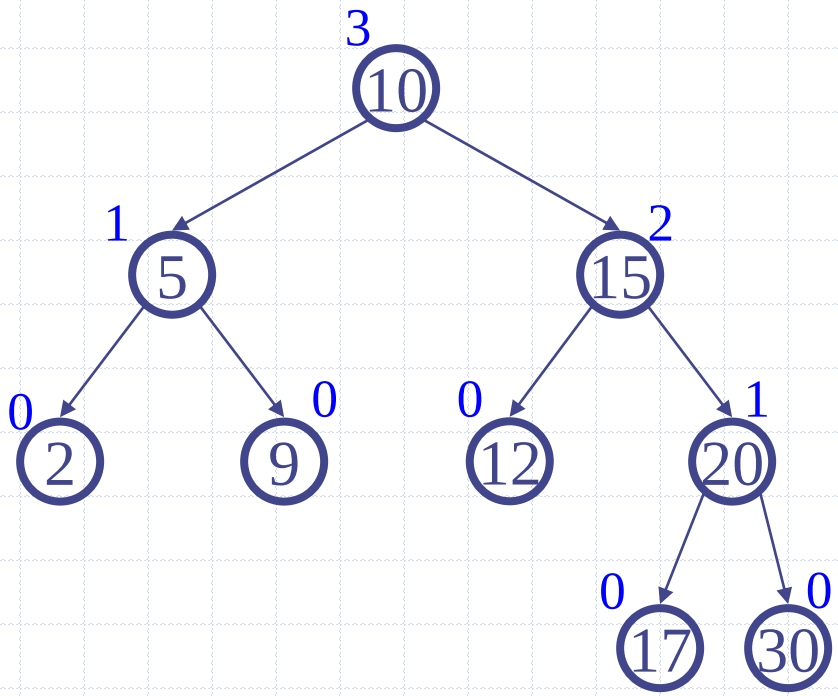




Note: height(empty tree) == -1

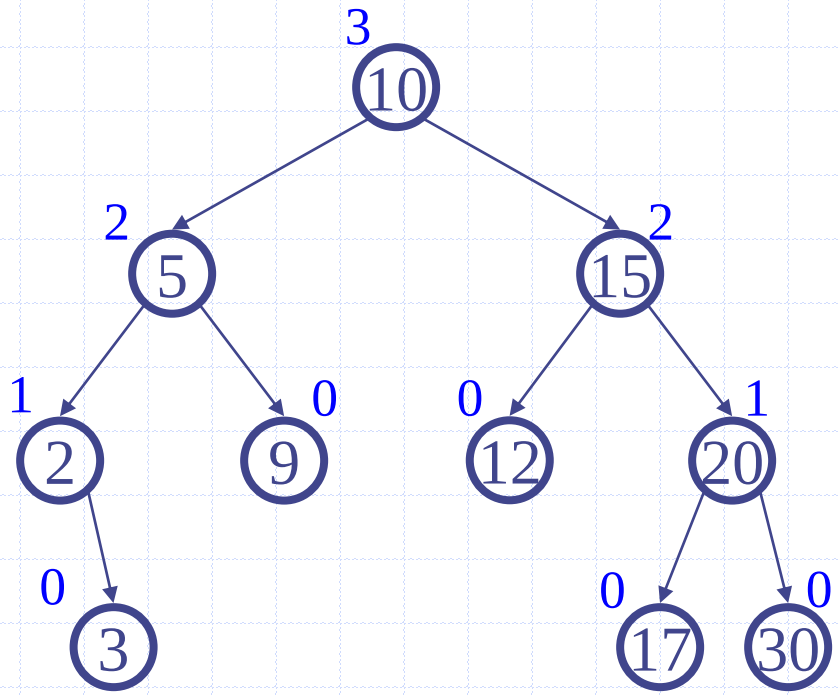
Easy Insert

Insert(3)

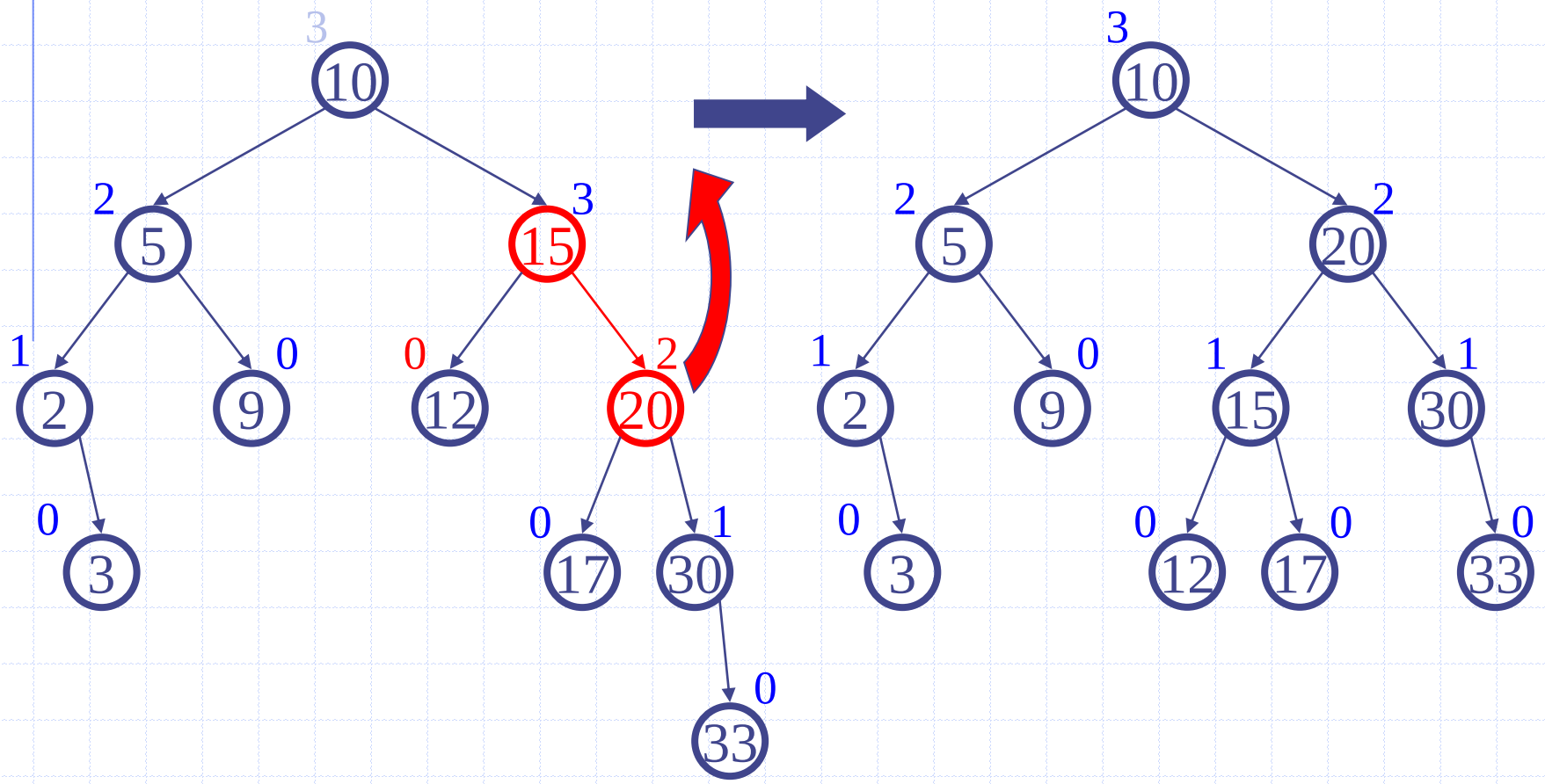


Hard Insert (Bad Case #1)

Insert(33)

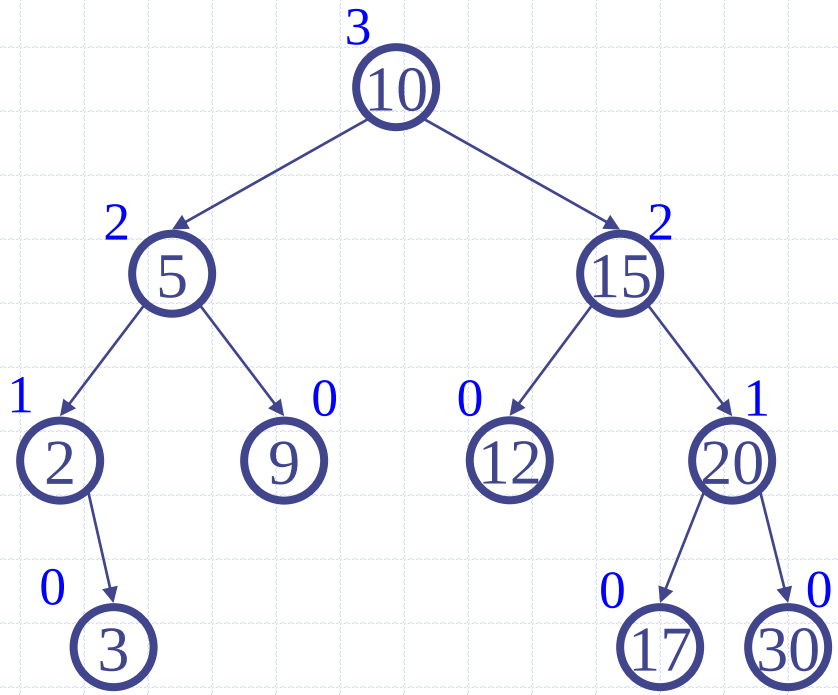


Single Rotation

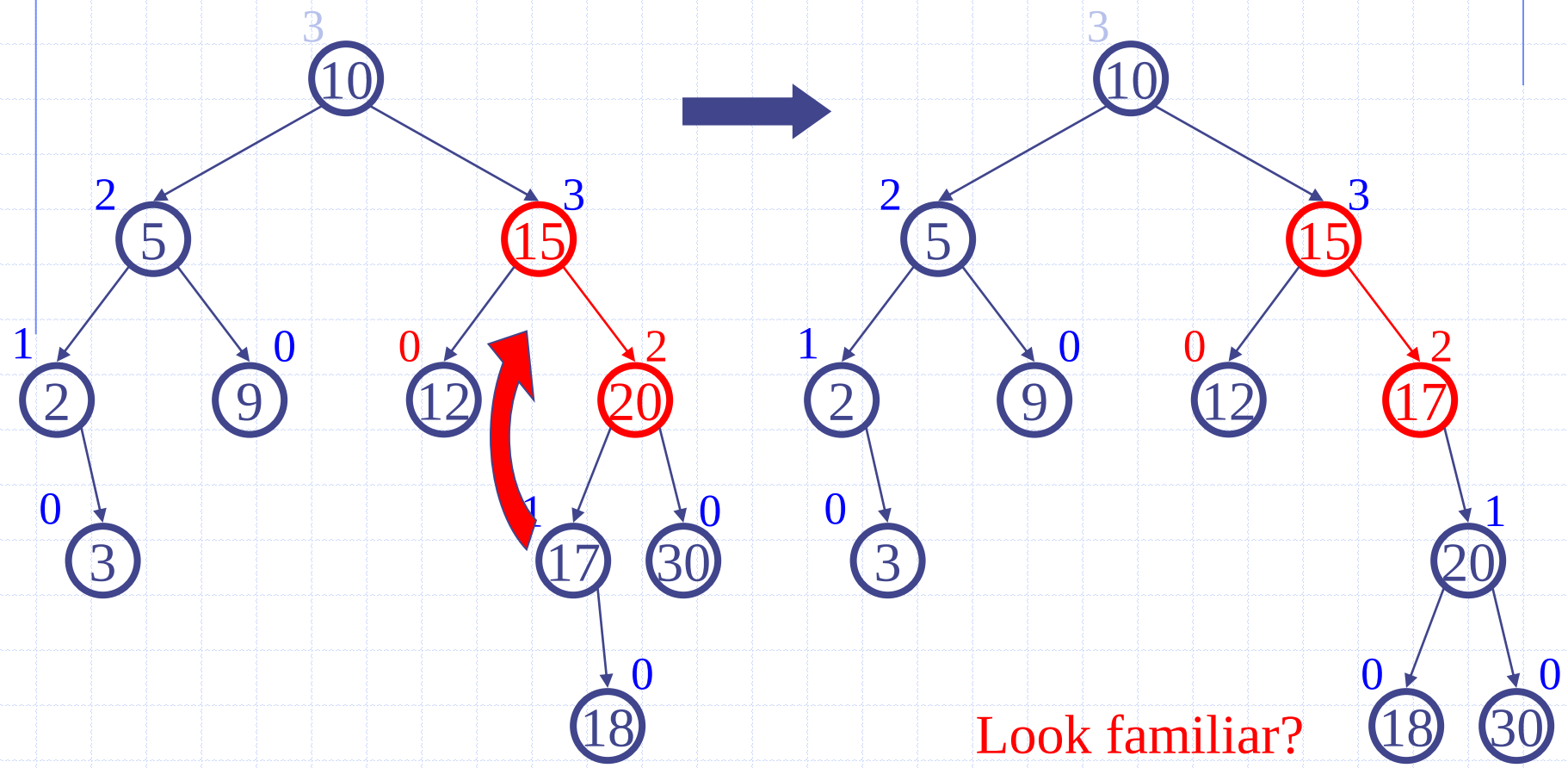


Hard Insert (Bad Case #2)

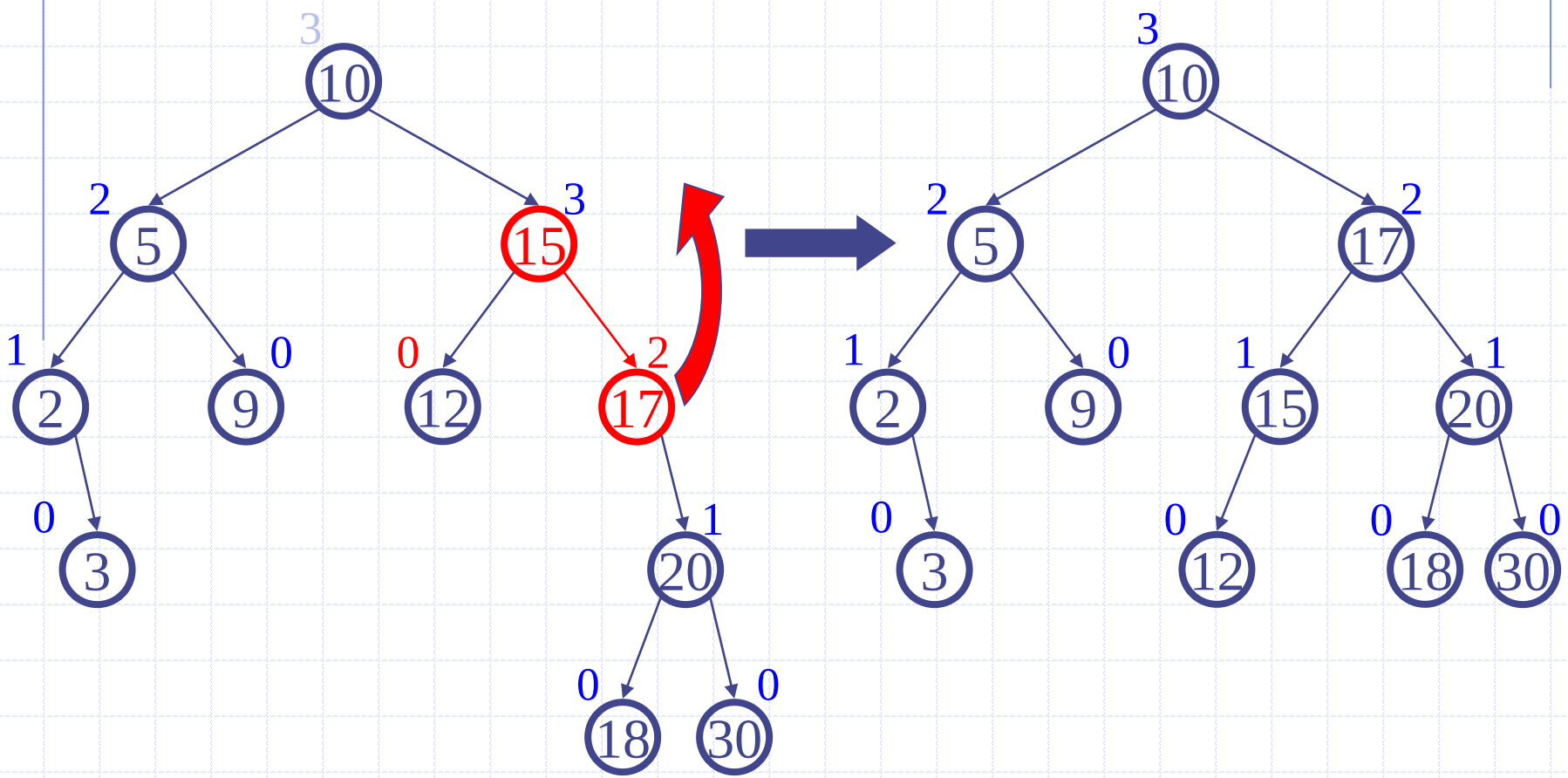
Insert(18)



Double Rotation (Step #1)

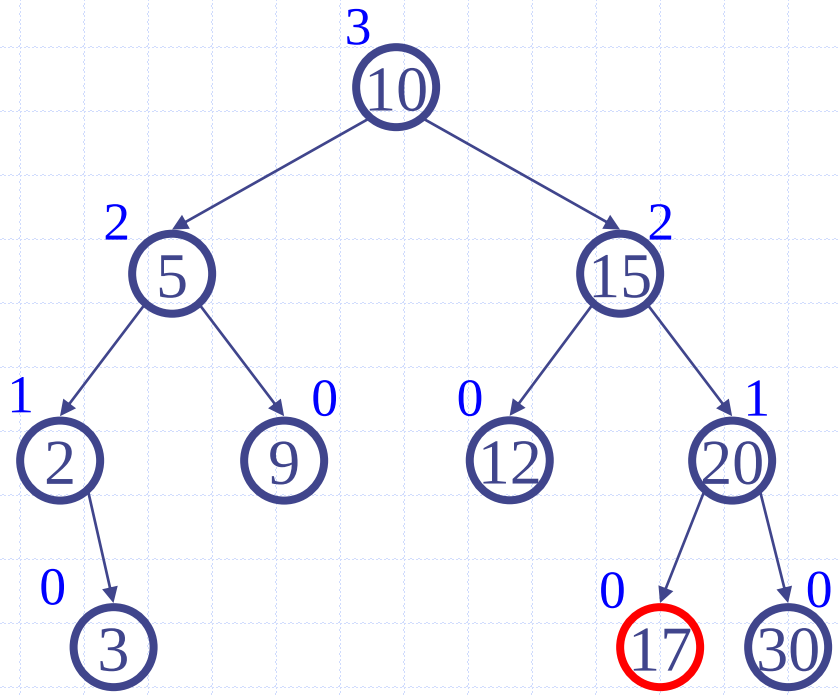


Double Rotation (Step #2)



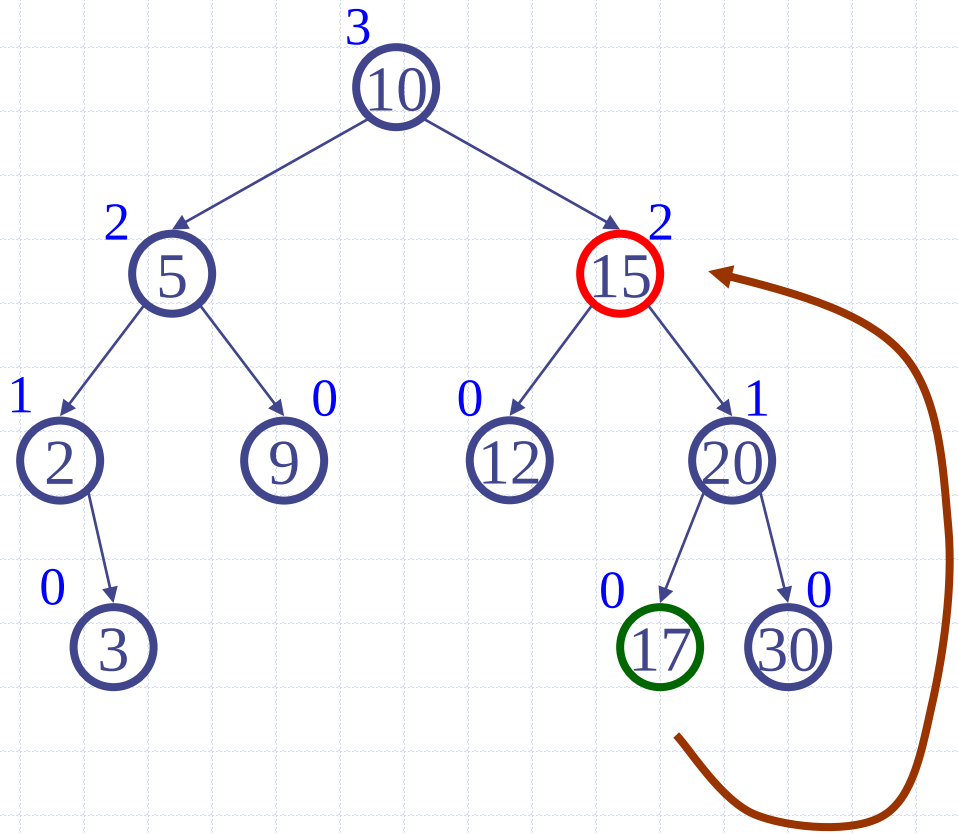
Deletion: Really Easy Case

Delete(17)



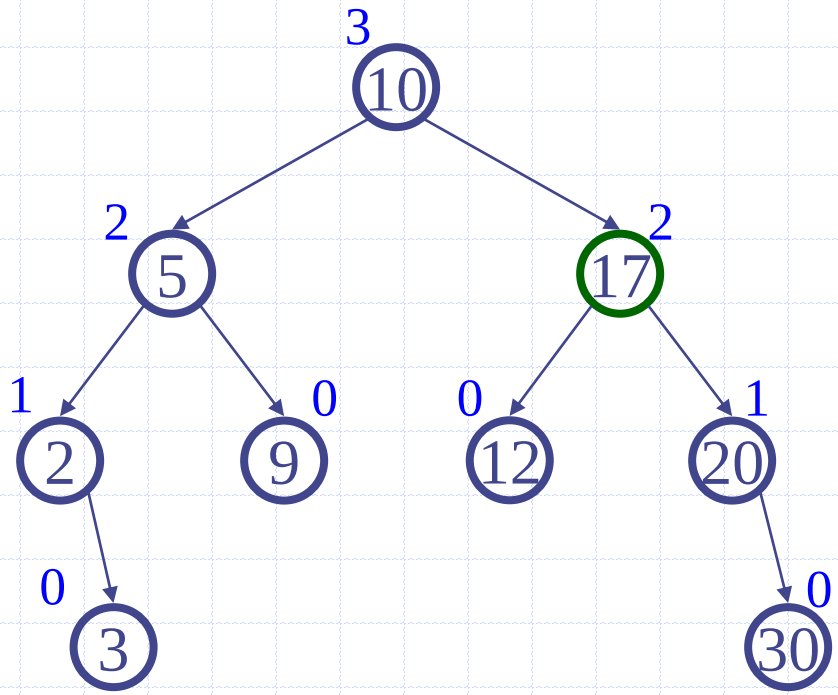
Deletion: Pretty Easy Case

Delete(15)



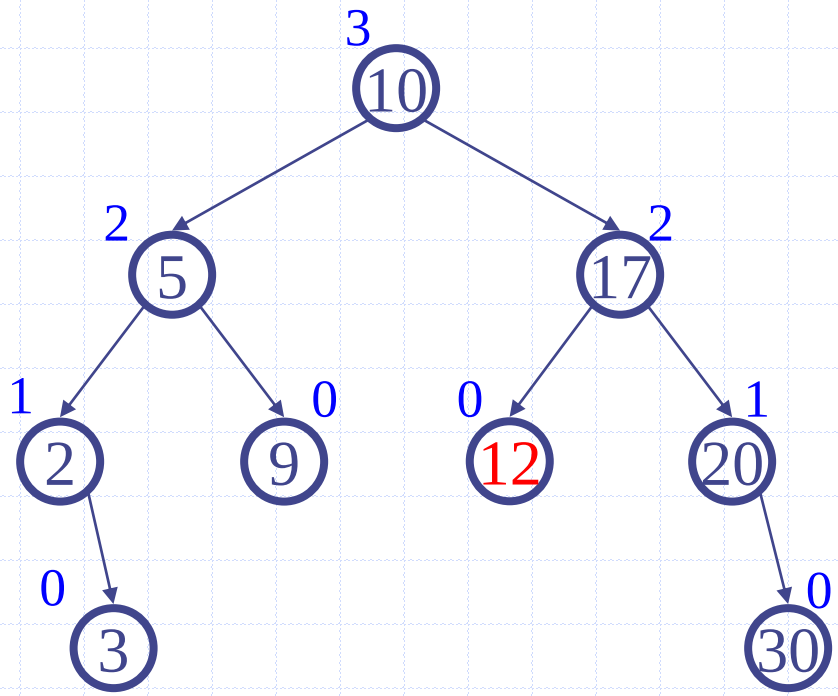
Deletion: Pretty Easy Case (*cont.*)

Delete(15)

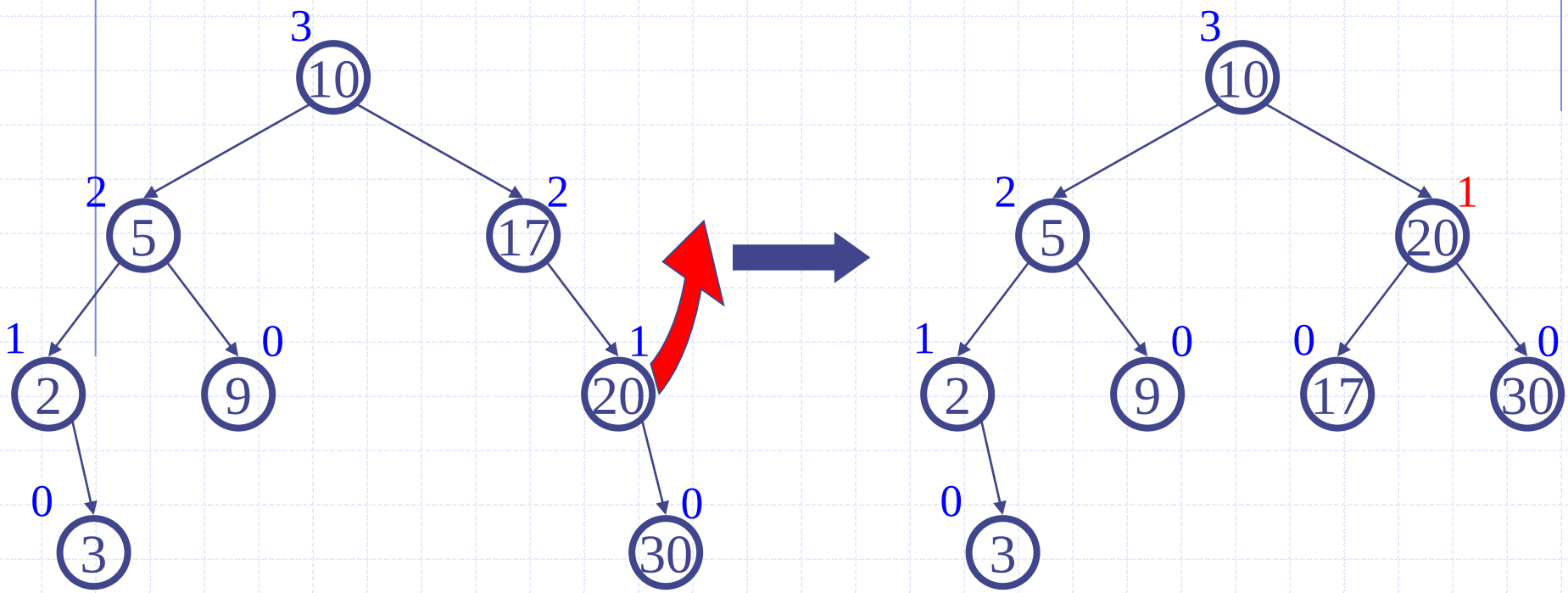


Deletion (Hard Case #1)

Delete(12)



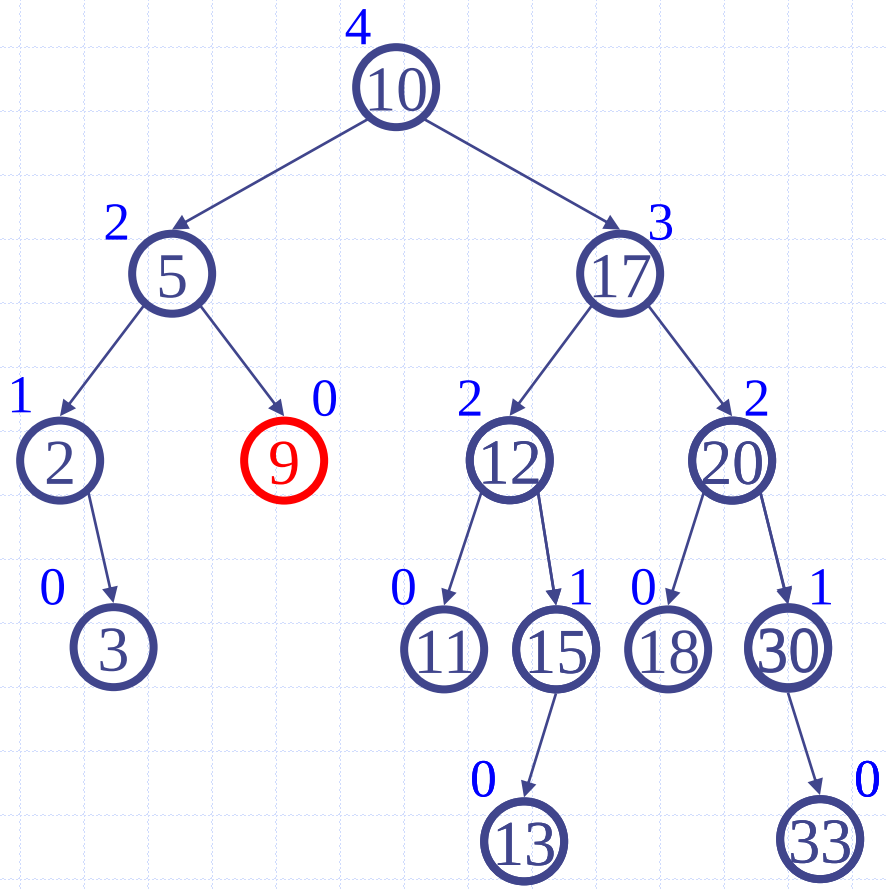
Single Rotation on Deletion



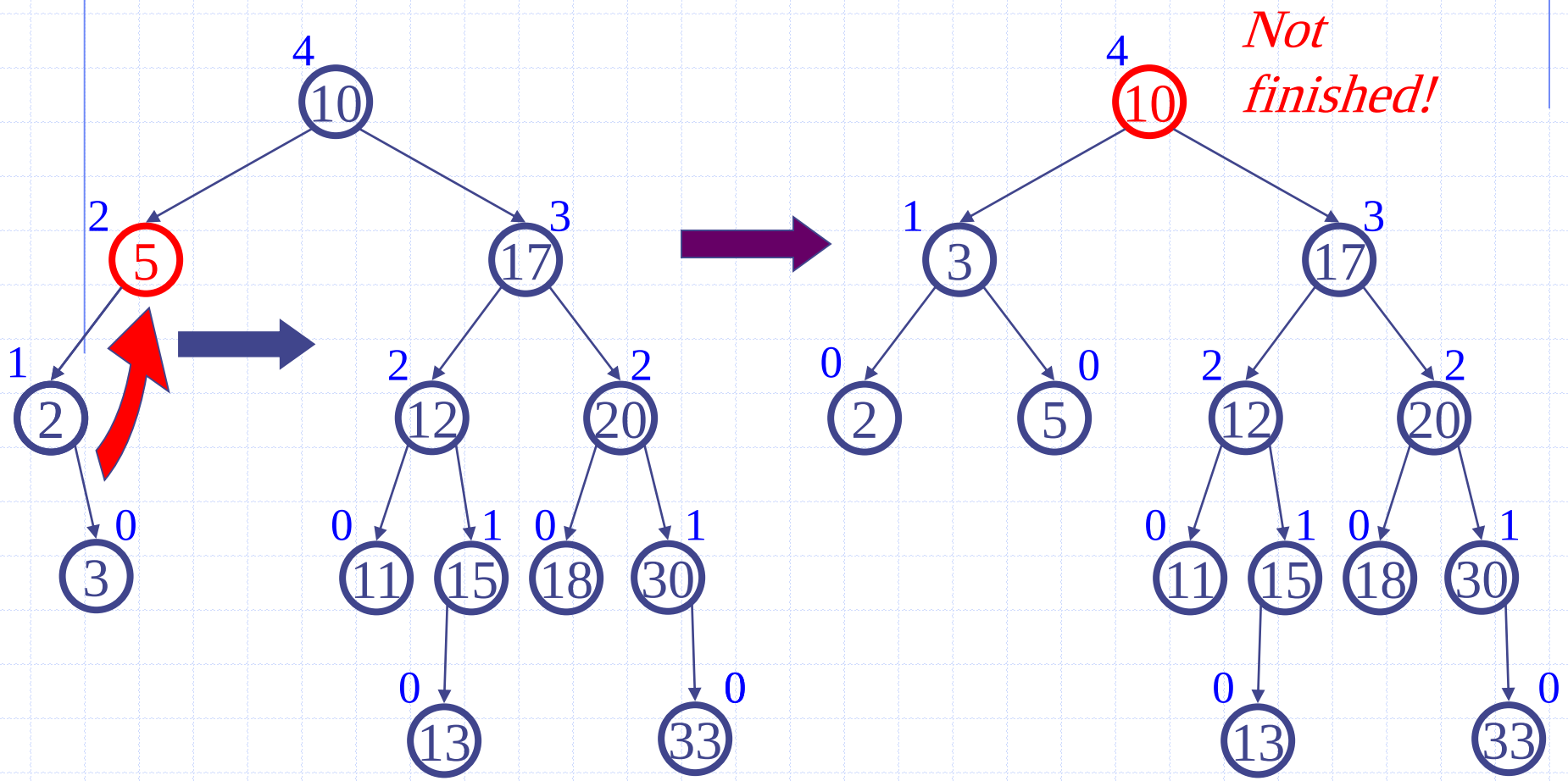
Deletion can differ from insertion – ***How?***

Deletion (Hard Case)

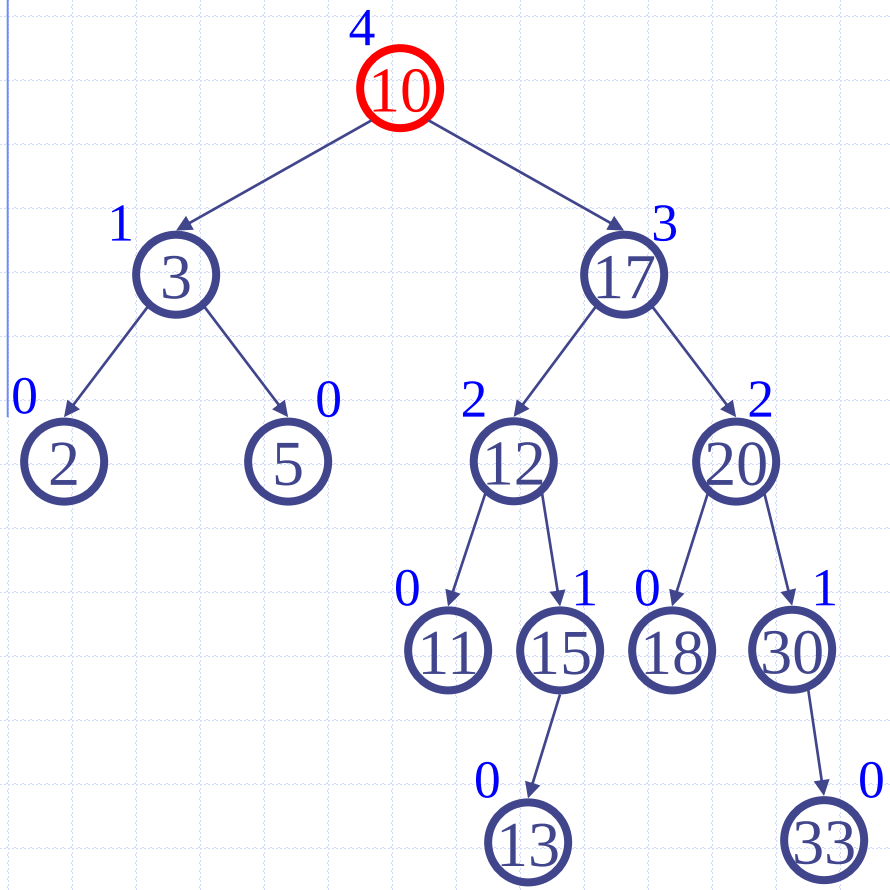
Delete(9)



Double Rotation on Deletion



Deletion with Propagation



What different about this case?

We get to choose whether to single or double rotate!

Propagated Single Rotation