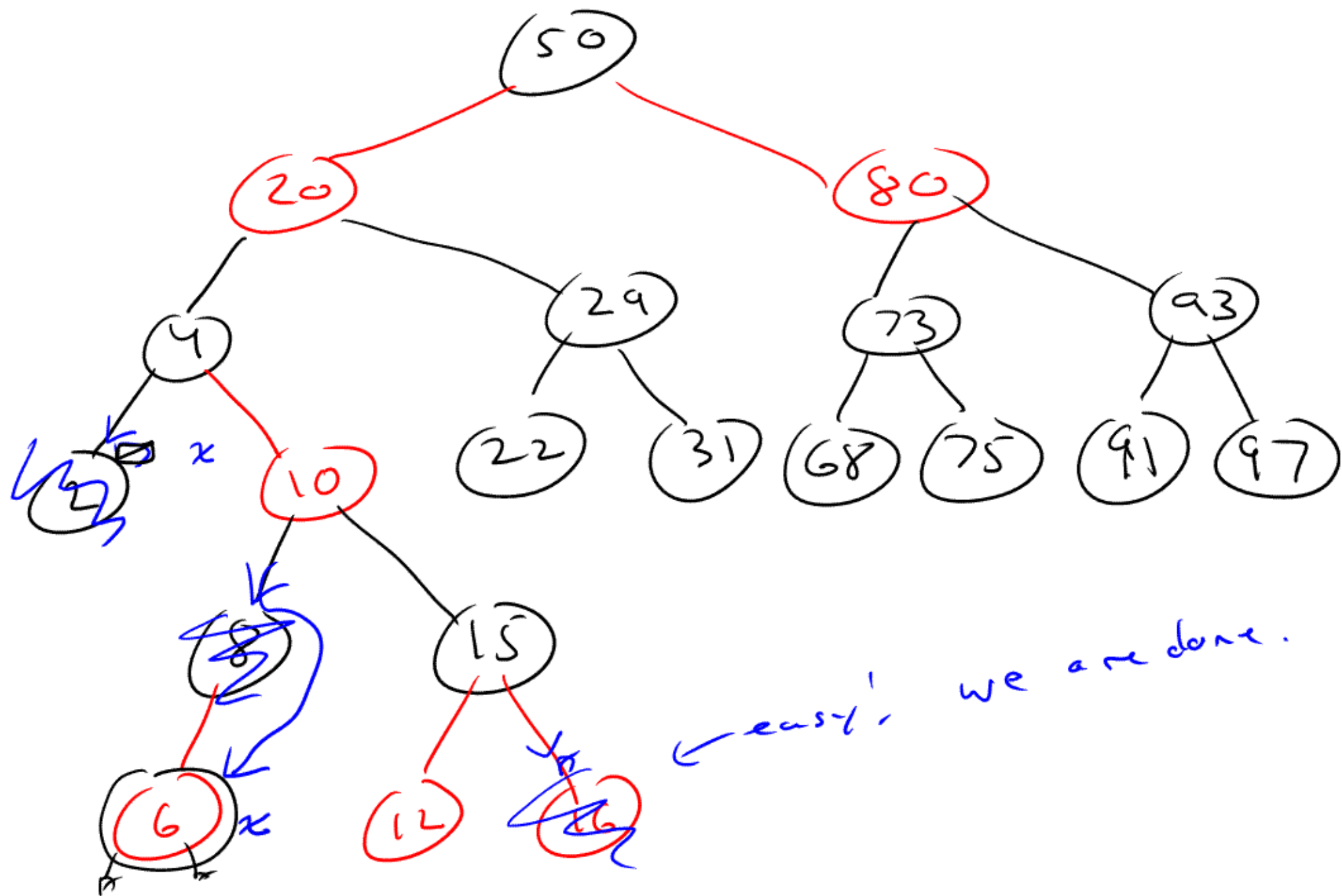
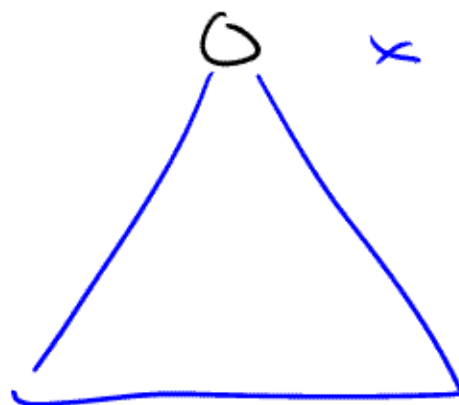
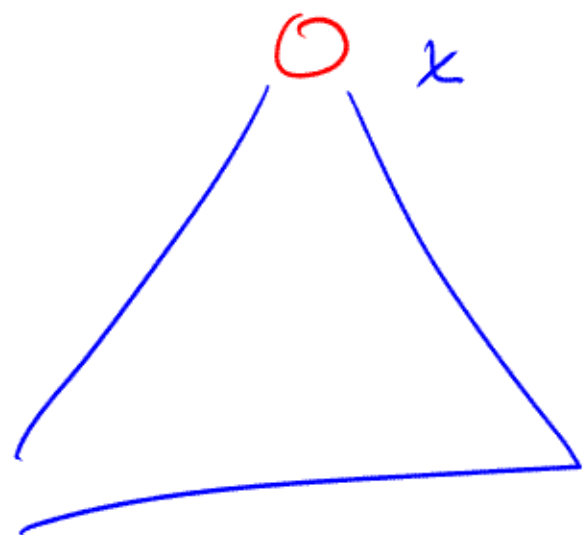


remove:
 red leaf
 black leaf
 black node w/ 1 child that's a red leaf





Remove (val)

{

BST remove

node actually removed, what
color is it?

→ red? STOP.

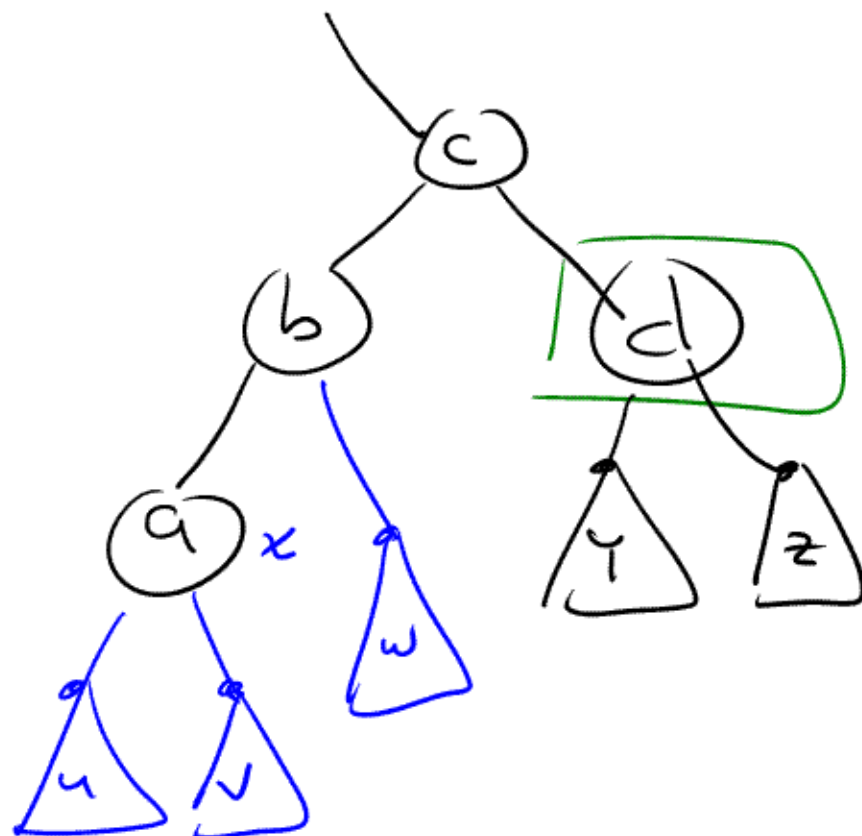
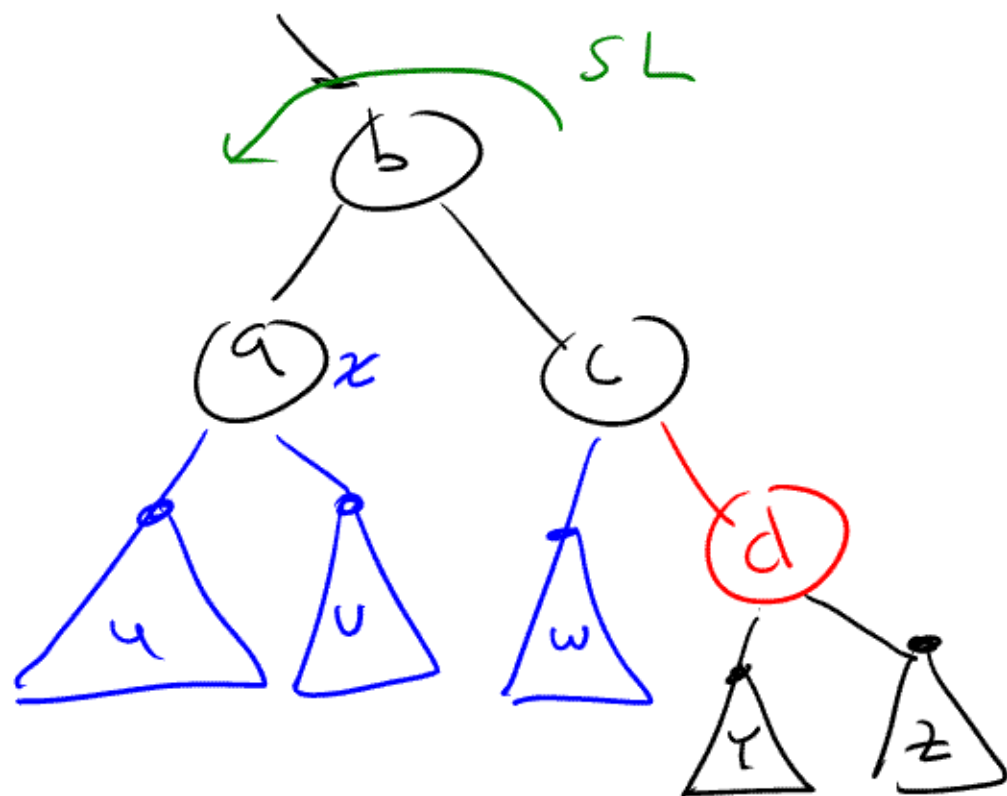
→ else black:

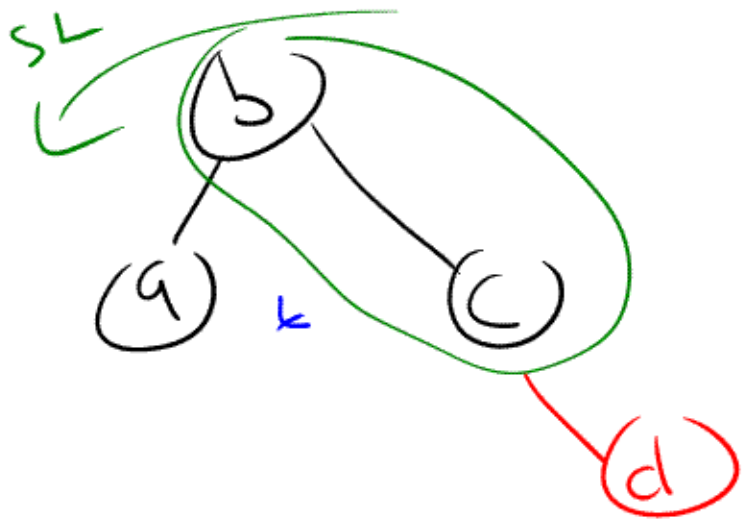
- where $p \rightarrow$ to deleted
node now $p \rightarrow$, label
that "x"

while (x not root &
 x is black)
{
// CASES

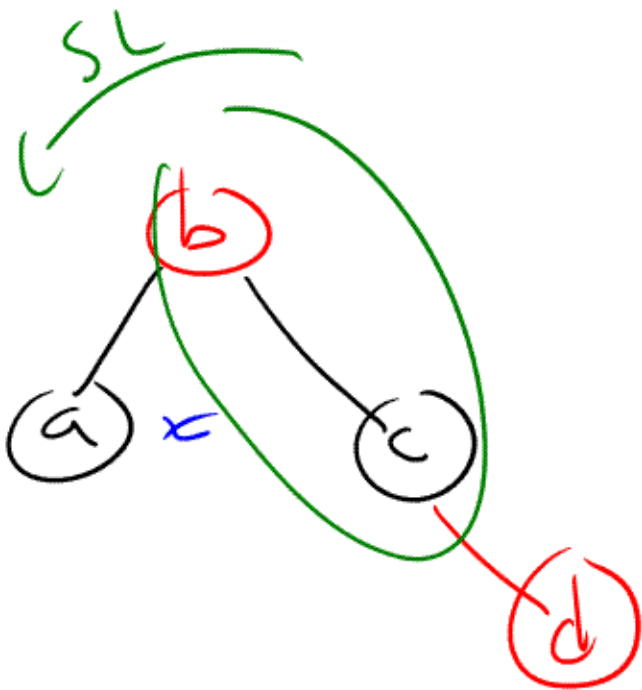
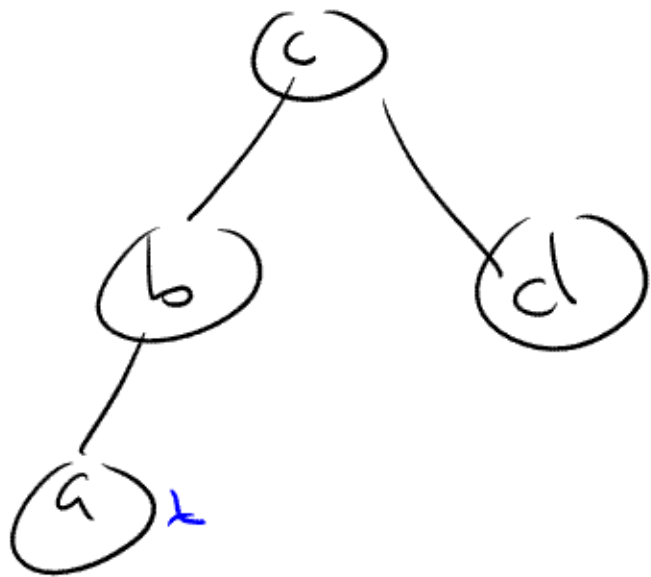
{ color x black

}

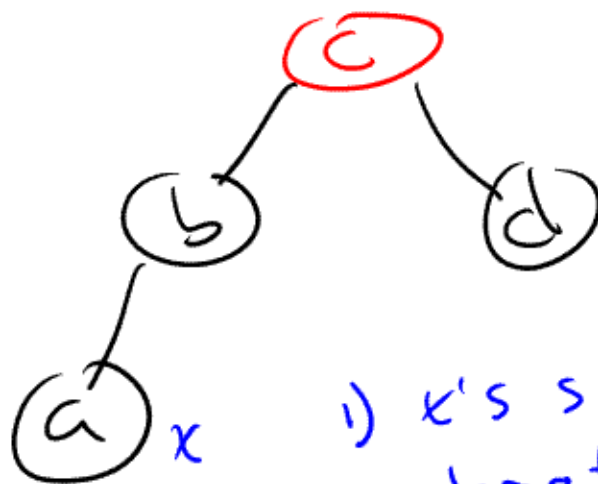




\Rightarrow

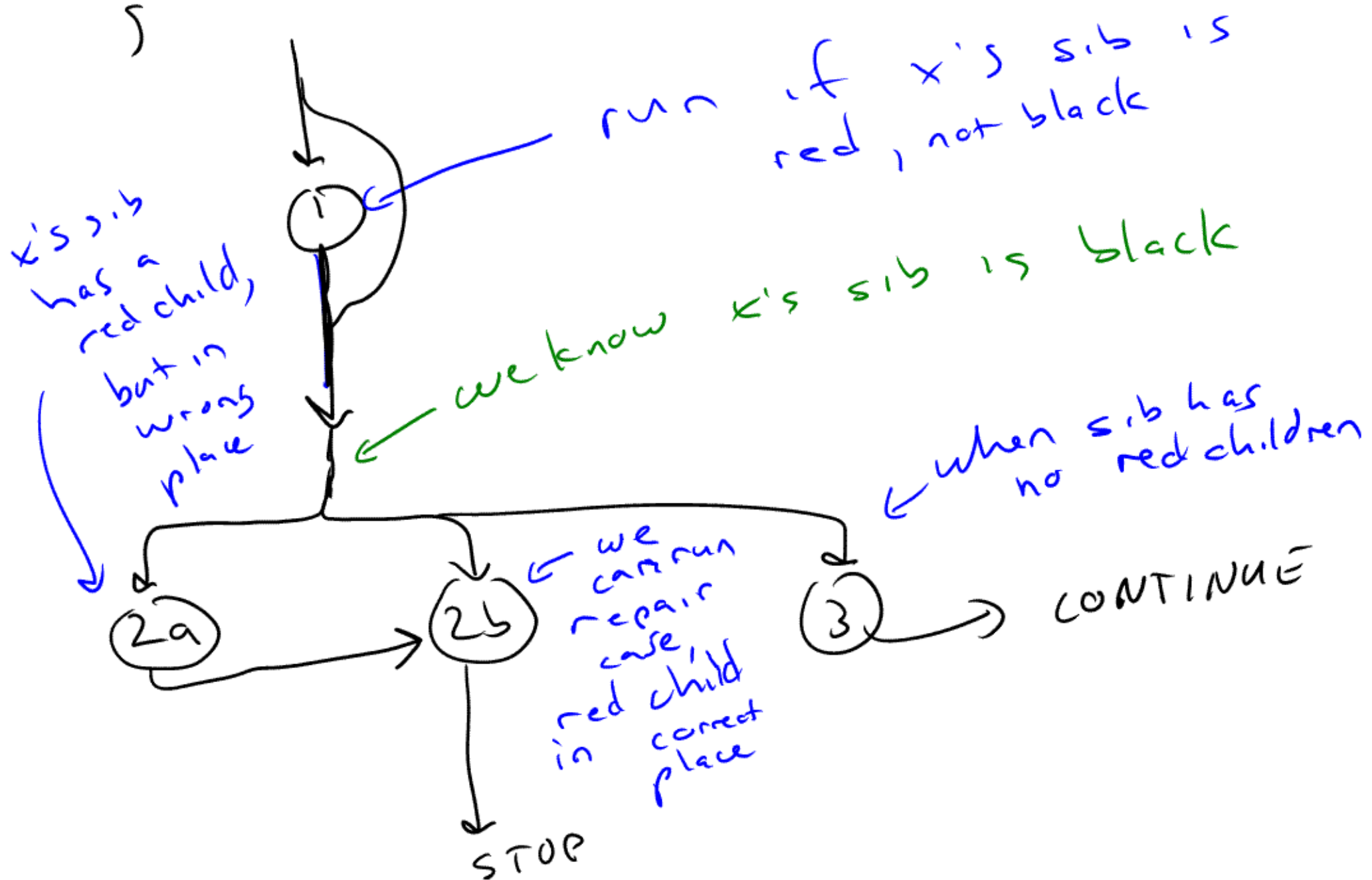


\Rightarrow

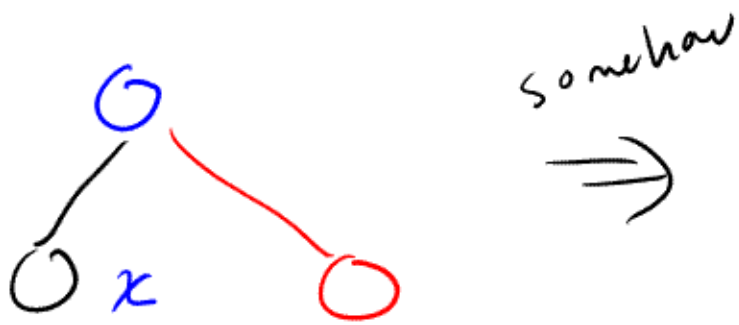


- 1) x's sib becomes color of x's parent
- 2) sib's far red child \rightarrow black
- 3) x's parent \hookrightarrow black

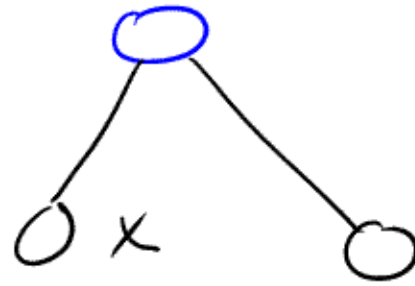
while (x not root & x is black)
{



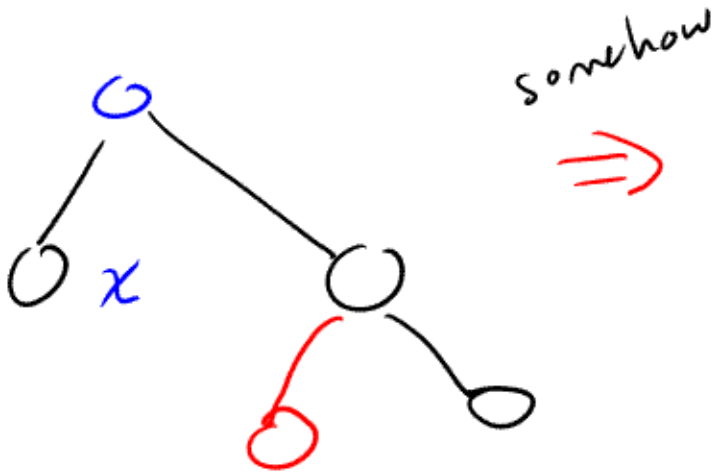
1)



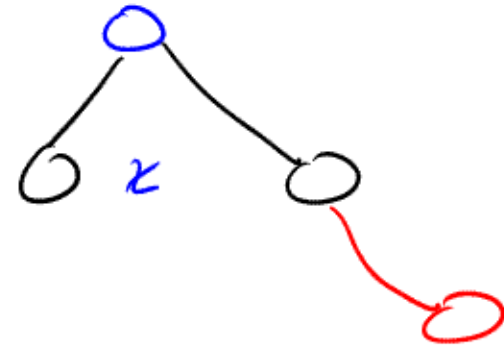
somehow \Rightarrow



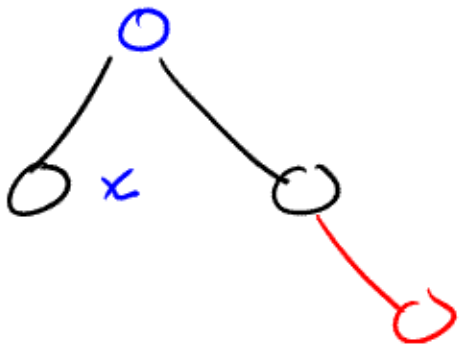
2a)



somehow \Rightarrow



2b)



repair case
discussed
earlier

\Rightarrow

fixes tree,
STOP

