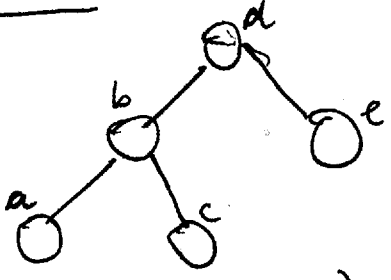


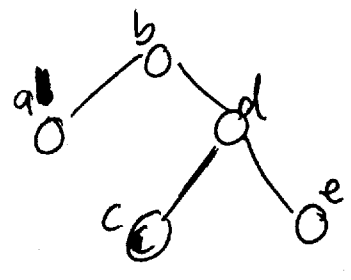
Situation 1 SINGLE-ROTATION



Situation 1
 $h(d) = 1 + \max(h(b), h(e)) = 1 + h(b)$
 $h(b) = h(c) + 2 \Rightarrow \text{Right Rotate!}$

$h(c) \leq h(a) \Rightarrow \text{No previous left rotate (b) necessary!}$

After right rotate (d)



$h(b) = h(a) + 1$
 $h(a) = h(e) + 1$
 $h(c) \geq h(a) - 1$

$h'(e) = h(e)$
 $h'(c) = h(c)$
 $h'(a) = h(a)$
 $h'(d) = 1 + \max(h'(c), h'(e)) = 1 + h(c)$
 $h'(b) = 1 + \max(h'(a), h'(d)) = 1 + h'(d)$
 $h'(b) = 1 + h'(d)$

Summary

Update height of ~~d~~

$h'(d) = 1 + h(c) \in \{h(d) - 2, h(d) - 1\}$
 $h'(b) = 2 + h(c) \in \{h(b), h(b) - 1\}$

$h'(d) = h(d) + h(c) - h(a)$
 $h'(b) = h(b) + h(c) - h(a)$

~~$h'(d) = h(b) + h(c) - h(a)$~~

where ~~t~~
 $h'(t) = h'(b) = 1 + h'(d) = h(d) + h(c) - h(a)$
 $= h(e) + h(c) - h(a)$

where t is "the top".