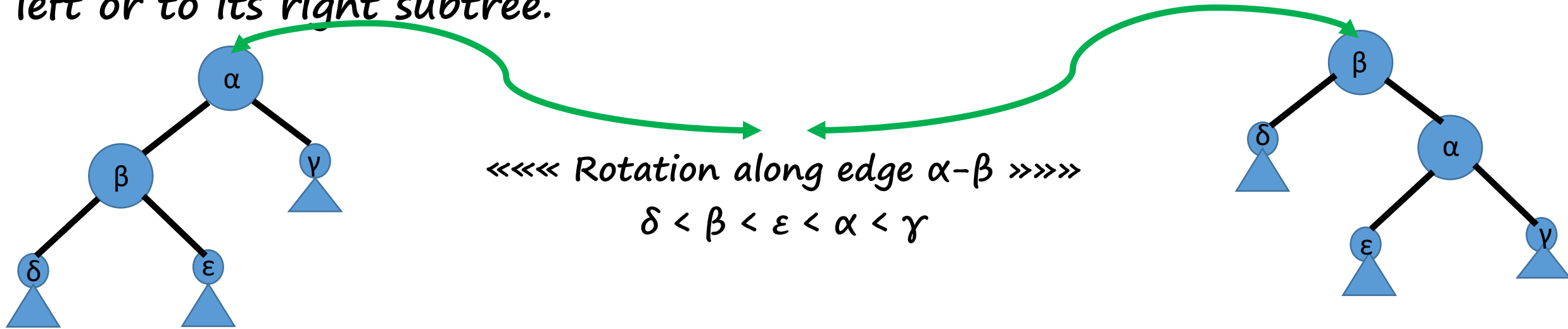# BSTs and Rotations

Rotation Operations on BSTs

- Given a binary tree, the rotation operation involves moving a node to its left or to its right subtree.

«««« Rotation along edge α–β »»»»

$\delta < \beta < \varepsilon < \alpha < \gamma$

- Right rotation at α »»»» : Transfer level/depth from leftmost grandchild to the rightmost

- Left rotation at β «««« : Transfer level/depth from rightmost grandchild to the leftmost

- Procedure RIGHT_ROTATE(x)

  1. y ← Left[x]

  2. T' ← Right[y]

  3. Right[y] ← x

  4. Left[x] ← T'

  5. Return(y)

- Procedure LEFT_ROTATE(x)

  1. y ← Right[x]

  2. T' ← Left[y]

  3. Left[y] ← x

  4. Right[x] ← T'

  5. Return(y)   O(1)