# Point Location

## Limited Node Copying

## - Recoloring

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❖ **For Red-Black trees, it's true that**

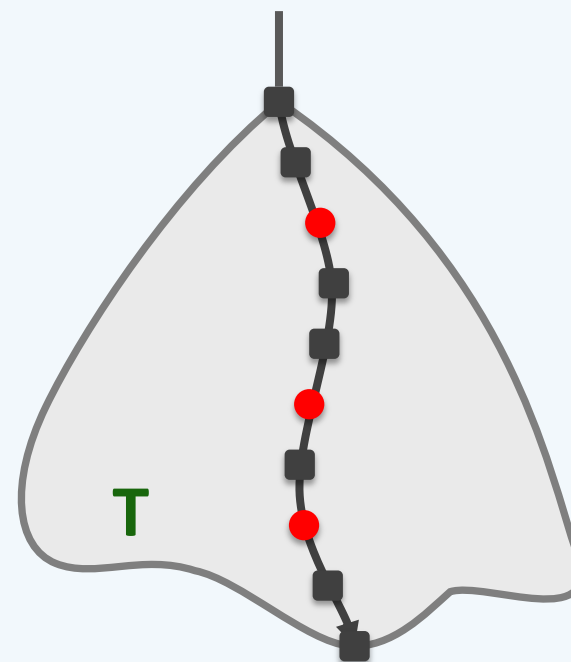  - **each insertion/removal**

    **causes only $O(1)$ rotation, but**

  - **there would be**

    **$\Omega(\log n)$ nodes being recolored**

❖ **How to distinct such nodes**

  **between consecutive versions?**

❖ **In fact, it's not necessary to do this because**

  - the node colors are used

    only for update, but

  - for a partially persistent structure

    only the ⟨current/last⟩ version

    can be updated

❖ **In other words,**

  once a node needs to be recolored,

  we just overwrite its color