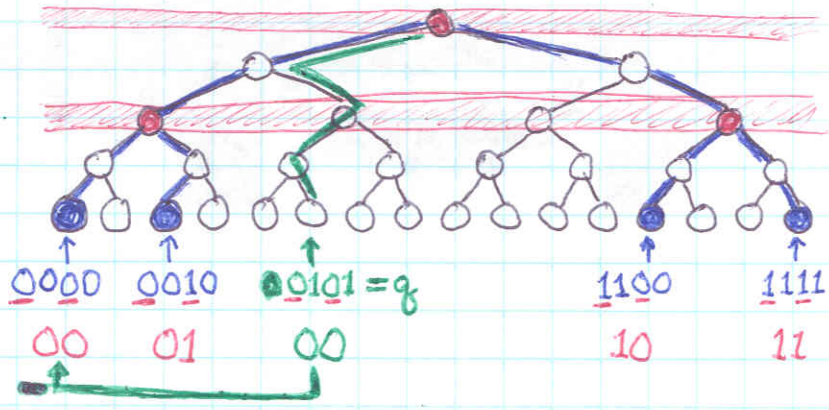
Desketchifying

6.897
L10.3
Mar. 8, 2005



- suppose $sketch(x_i) < sketch(q) < sketch(x_{i+1})$
- compute longest common prefix = lowest common ancestor between q and either x_i or x_{i+1} (whichever's longest/lowest)
  ↑ nonsketch
- this is the node y where q fell off the "right paths" (blue paths from root to x_i)

⇒ correct direction (subtree) = $\begin{cases} y1 & \text{if } (y+1)\text{st bit of } q = 0, \\ y0 & \text{if } (y+1)\text{st bit of } q = 1. \end{cases}$

- extremen e in subtree = $\begin{cases} y100\cdots0 \\ y011\cdots1 \end{cases}$
  ↳ closest to q
- predecessor & successor of q = (in sketch) predecessor & successor of $sketch(e)$
  ← among x_i's
  ← among $sketch(x_i)$'s