

# Point Location

## Performance Of Trapezoidal Map

- Probability Of Enclosing Trapezoid Changed

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## Point Location

❖ For the second case,

since there are

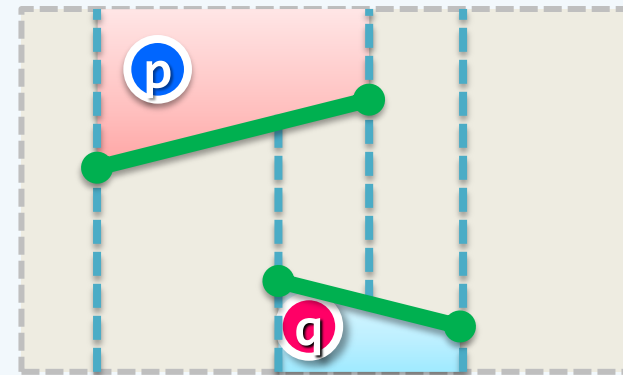
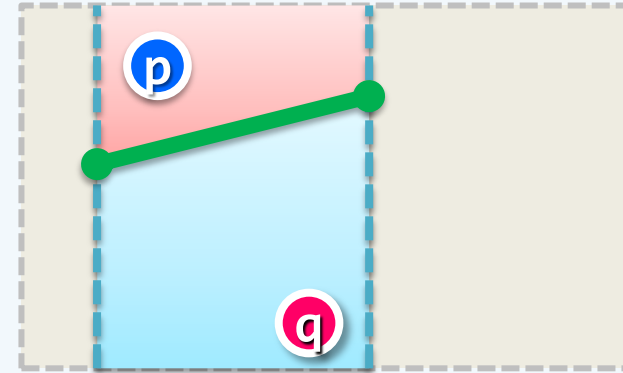
a constant number (at most 4)

of such trapezoids,

it will cost expected- $\mathcal{O}(1)$  time

to locate  $q$

//  $q$  may fall as much as 3 levels in  $SS(S)$



## Probability

❖ To estimate the expected **height** of  $SS(S)$ ,

it suffices to compute

the **probability** that

the trapezoid that contains  $q$

**changes** as a result of

the  $k^{\text{th}}$  insertion

❖ Denote this probability as  $P_k$ ,

taken over all random insertion **orders**

