Triangulation

Beyond Ω(nlogn)

- HVP

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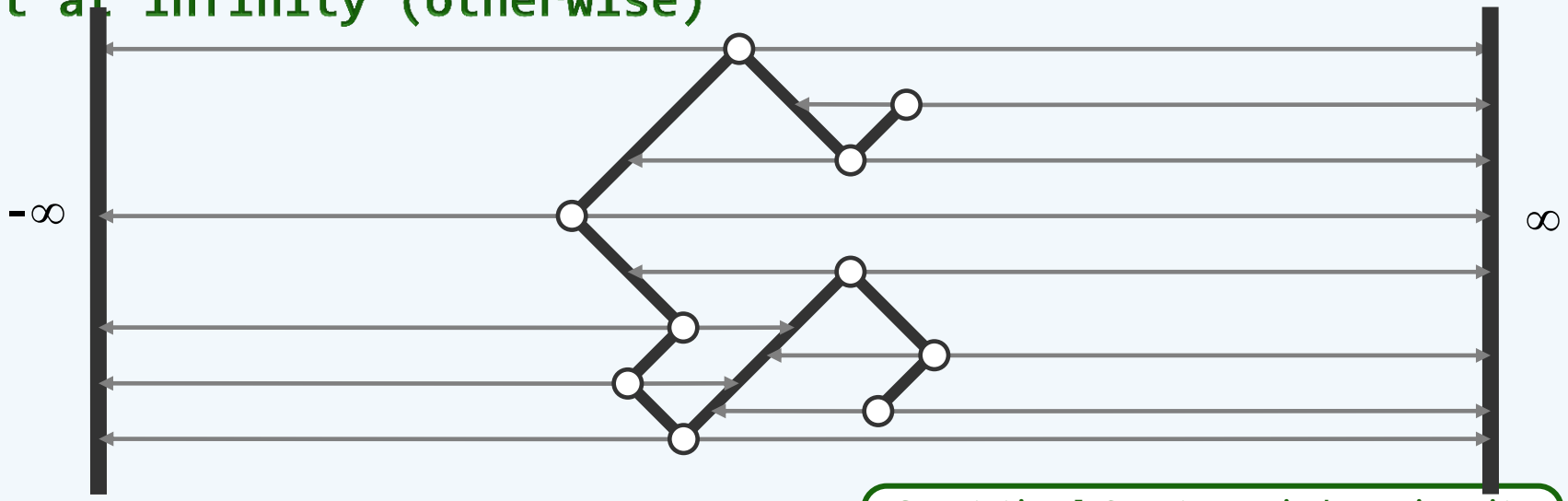
Horizontal Visibility Partition

- Trapezoidalization may be extended to simple polygonal chains, where the horizontal lines run to infinity if they meet no obstruction
- The HVP of a simple polygonal chain is the partition of the plane obtained by adding horizontal edges connecting each vertex to
  - the closest point on the chain on both sides (if exists), or
  - a point at infinity (otherwise)



Merging HVP's

- Let P_1 and P_2 be two successively adjacent simple polygonal chains
- [Chazelle & Incerpi, 1984]

  If $P_1 \cup P_2$ is also a simple polygonal chain, then

  $HVP(P_1 \cup P_2)$ can be obtained from $HVP(P_1)$ and $HVP(P_2)$ in linear time
- This result indicates a natural divide-and-conquer algorithm

  for computing the HVP of a simple polygonal chain
- [Chazelle & Incerpi, 1984]

  The HVP of a simple polygonal chain can be computed

  in $O(n \log n)$ time, where n is the length of the chain
- However, the performance of this algorithm is not improved