04-D-01

Voronoi Diagram

Complexity

- Linearity

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Augmentation

- We can imagine that

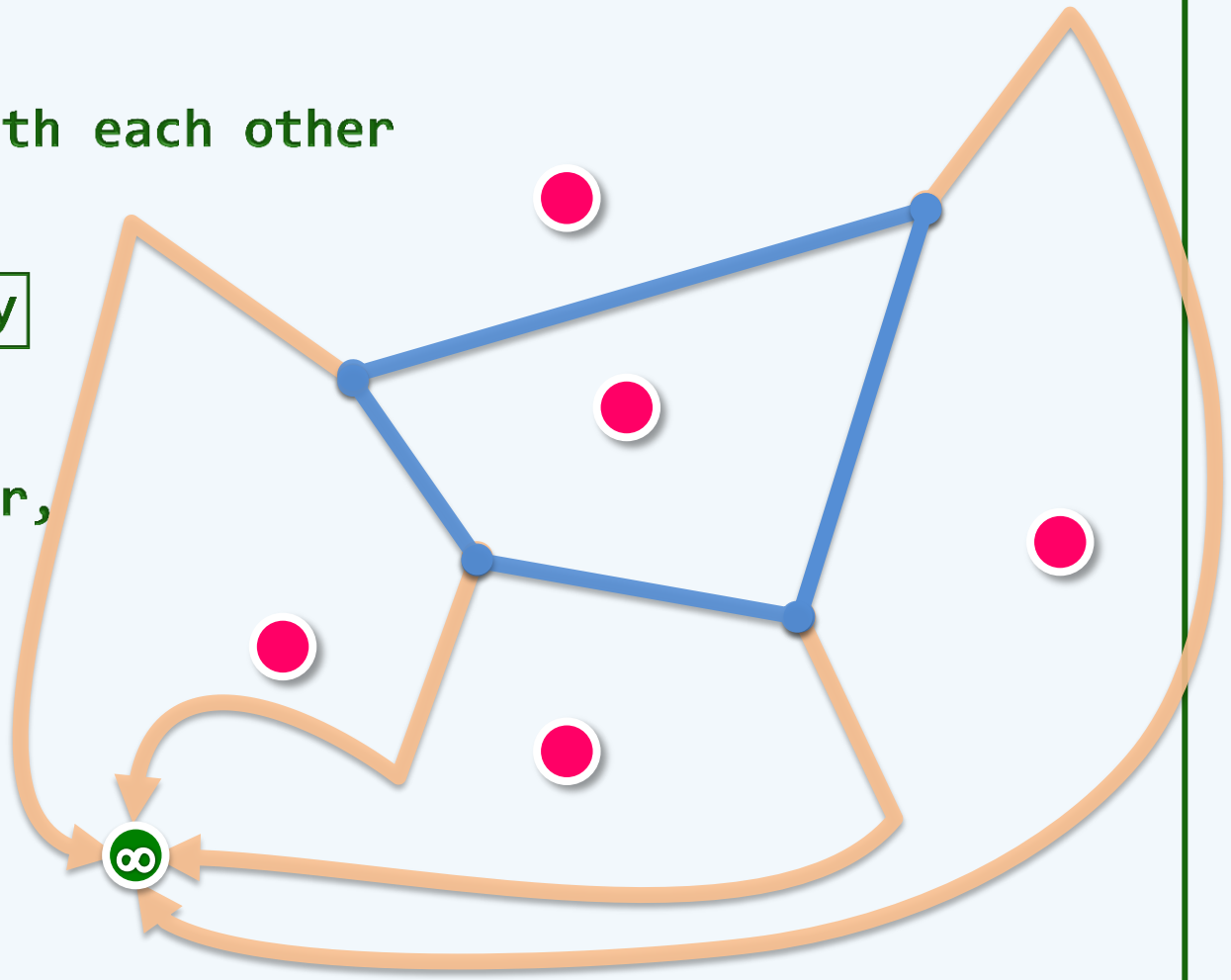
  all unbounded edges intersect with each other

  at a common vertex at **infinity**

- Unless sites in S are all collinear,

  VD(S) is a **connected planar graph**

  with n faces (1 for each site)



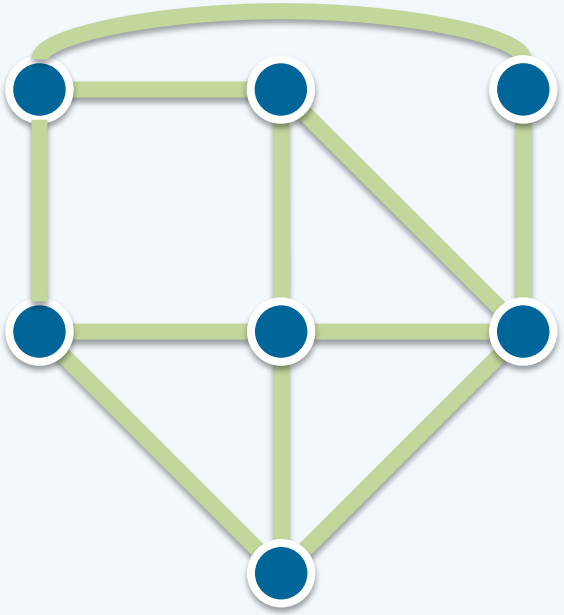
Linearity

❖ [Claim]

The VD of n sites has

$O(2n - 4)$ vertices and

$O(3n - 6)$ edges



❖ In other words,

VD(S) has a complexity **linear**

in the number of sites in S

❖ So we can measure algorithm (time/space) complexity

w.r.t. n, the number of sites