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Point Location

Kirkpatrick Structure

- Triangulation

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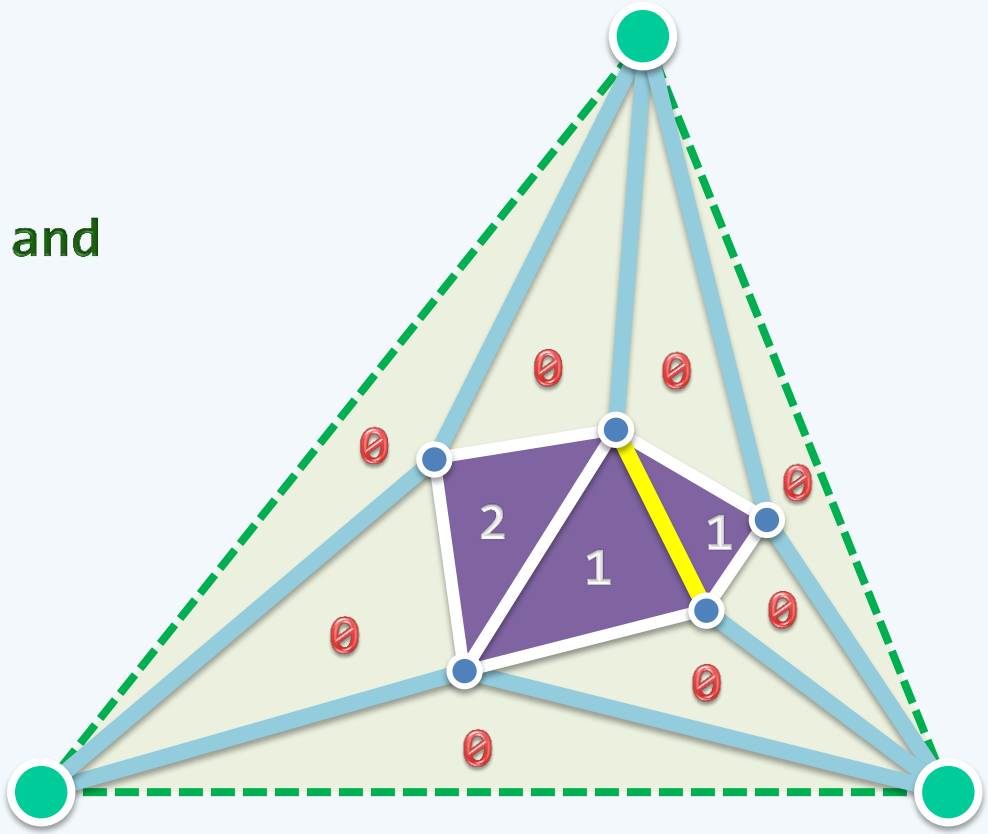
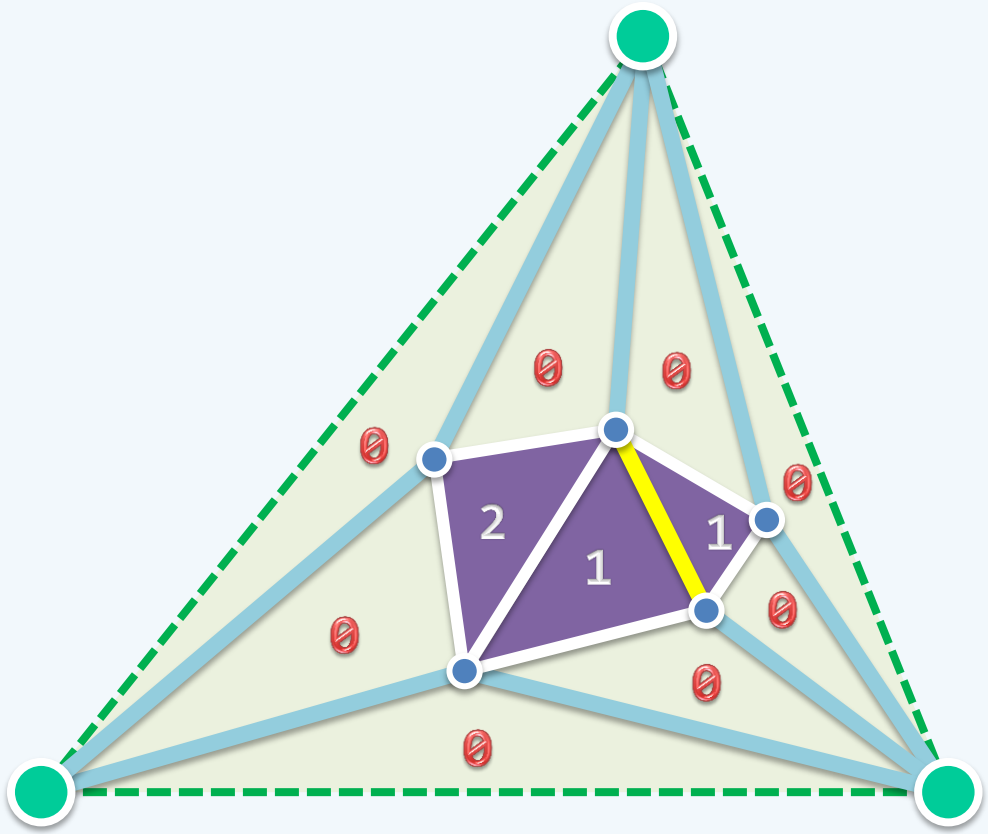
Refinement

- We assume here that
  1) the subdivision is a triangulation, and
  2) the outer face is a triangle
- If assumption #1 is not met,
  we can begin with
  triangulating all the faces
  of the subdivision



Bounding Triangle

- If assumption #2 is not met, we
  - compute the convex hull of the polygonal subdivision;
  - surround this convex polygon with a large triangle; and
  - triangulate the area between them
- Note that both jobs
  - can be done in $O(n \log n)$ time and
  - will just increase the structure complexity by a constant factor



Label

- The label associated with each triangular face
  - is the same as the label
    - for the original face that contained it
- Thus, once we find the triangle
  - containing the query point
    - in the augmented graph,
      - we will know the original face
        - that contains the query point