

Voronoi Diagram

Plane Sweep

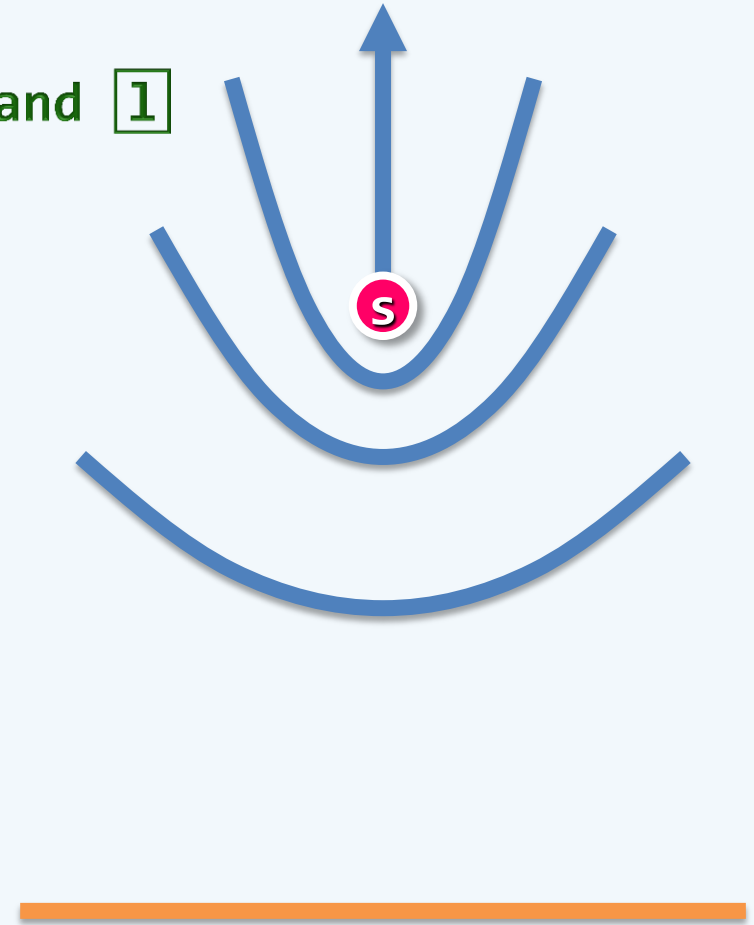
- Lower Envelope

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Parabola

- ❖ Given a site s and a sweepline l ,
the set of points that are equidistant from s and l
is a parabola taking s/l
as its focus/directrix
- ❖ The parabola
 - becomes skinner as the SL
moves closer to the site, and
 - will degenerate into a vertical ray
emanating from the site
when the site coincides with the line



Lower Envelope

❖ Thus, the BL

- is the **lower envelope** of all parabolas and
- consists of a sequence of parabolic arcs joined at their endpoints



❖ Note that

- a parabola can contribute **$1 \sim n$** arcs to the BL
- at any time, the BL consists of no more than **$2n - 1$** arcs

❖ Because **each** parabolic arc is x-monotone, we have again that the **entire** BL is x-monotone