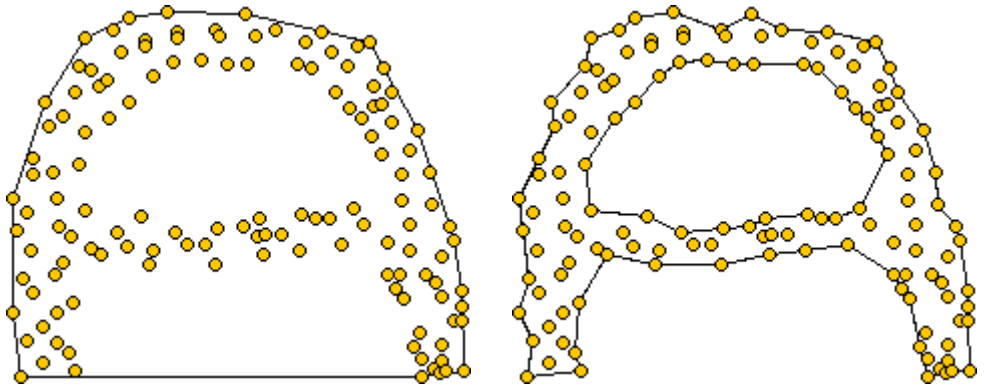
Alpha-Shapes (TP)

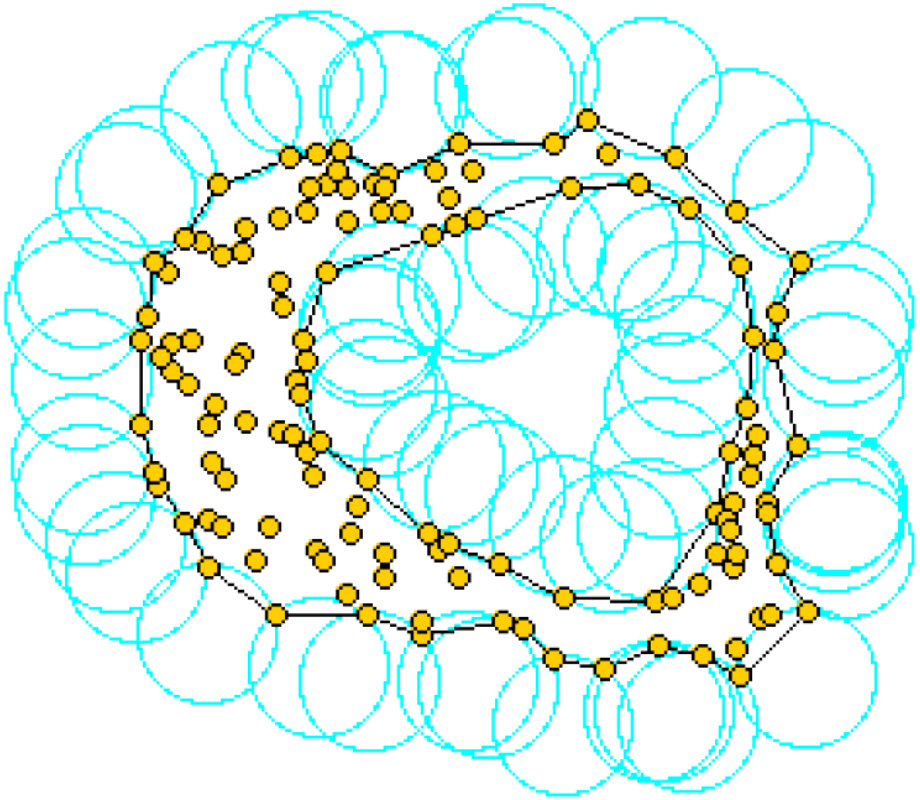
INRIA

Alpha-Shapes [Edelsbrunner, Kirkpatrick, Seidel]

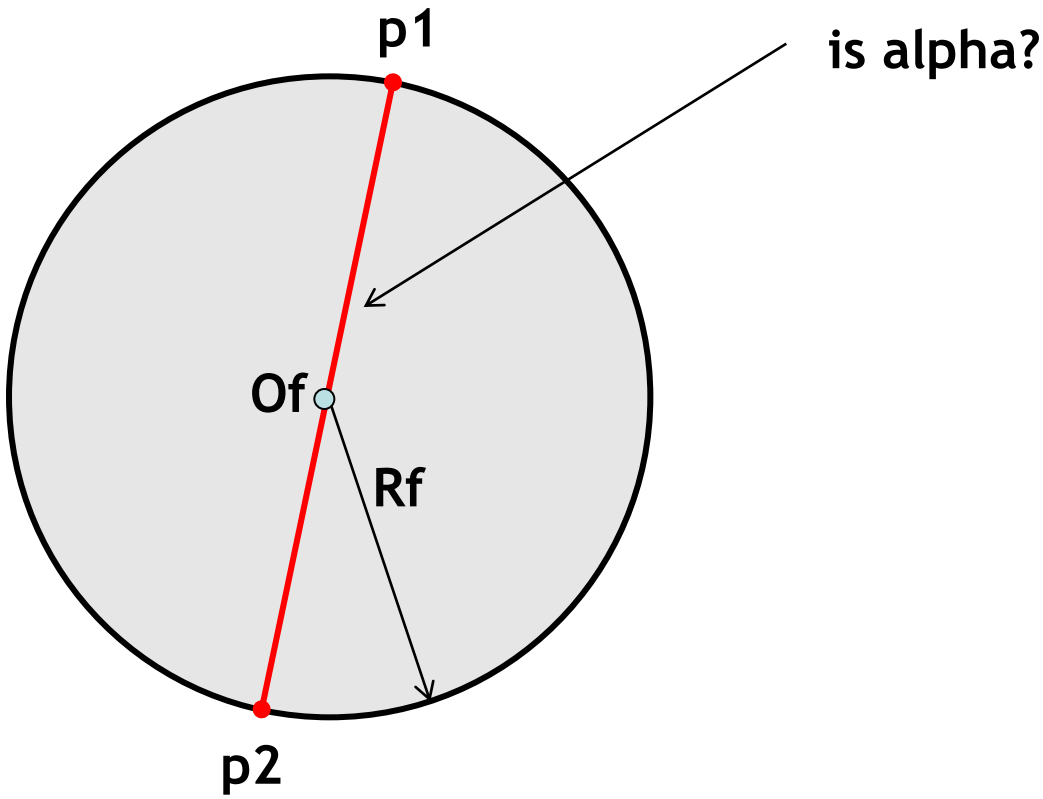
- In 2D: family of piecewise linear simple curves constructed from a point set P.
- Subcomplex of the Delaunay triangulation of P.
- Generalization of the concept of the convex hull.



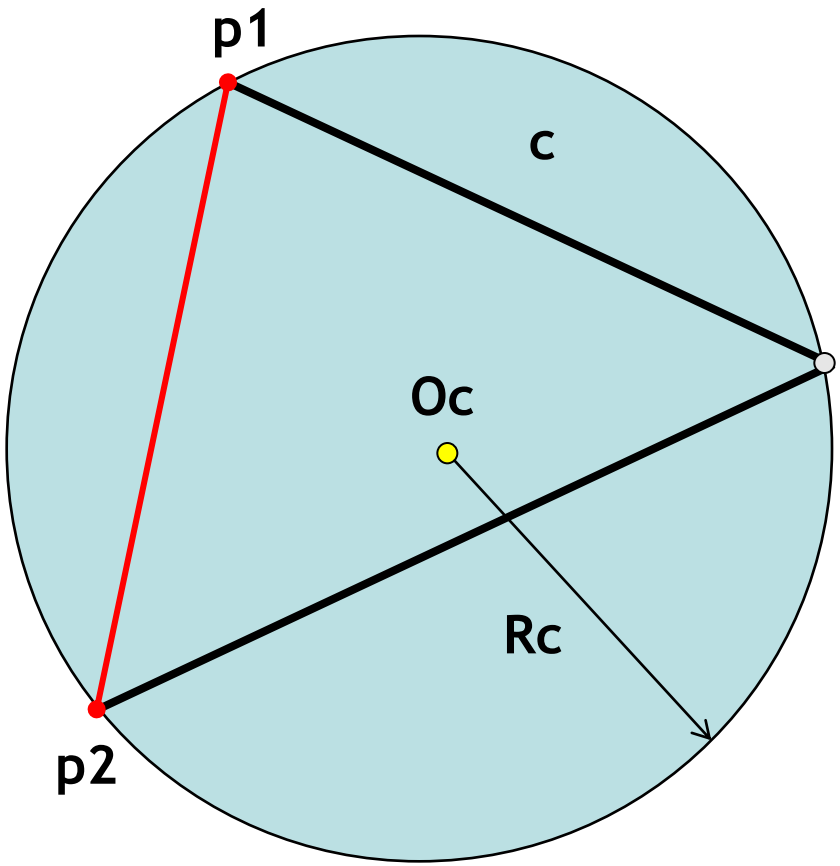
Alpha-Shapes



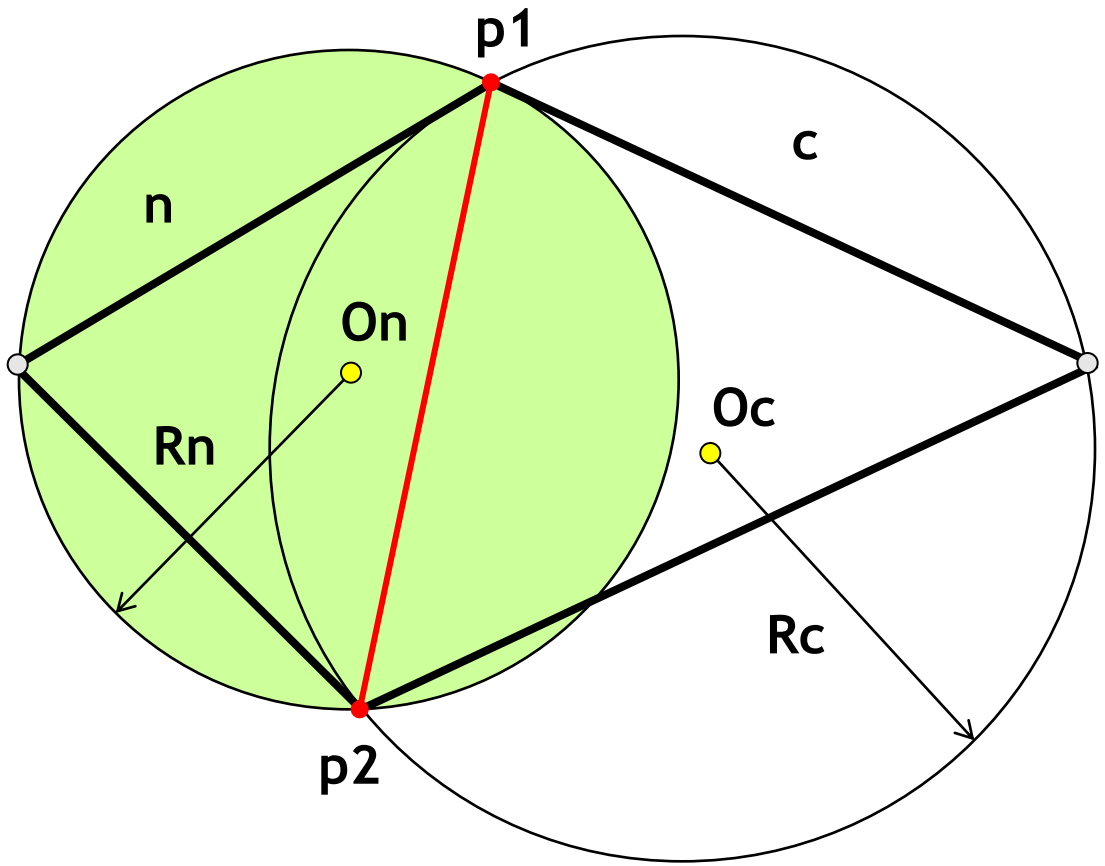
2D Alpha-Shapes (general case)



2D Alpha-Shapes (general case)

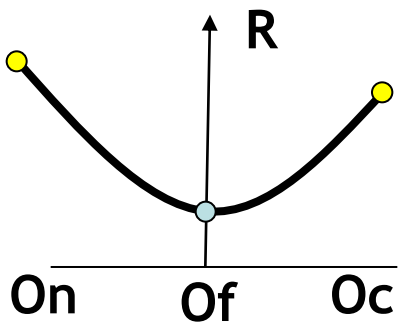


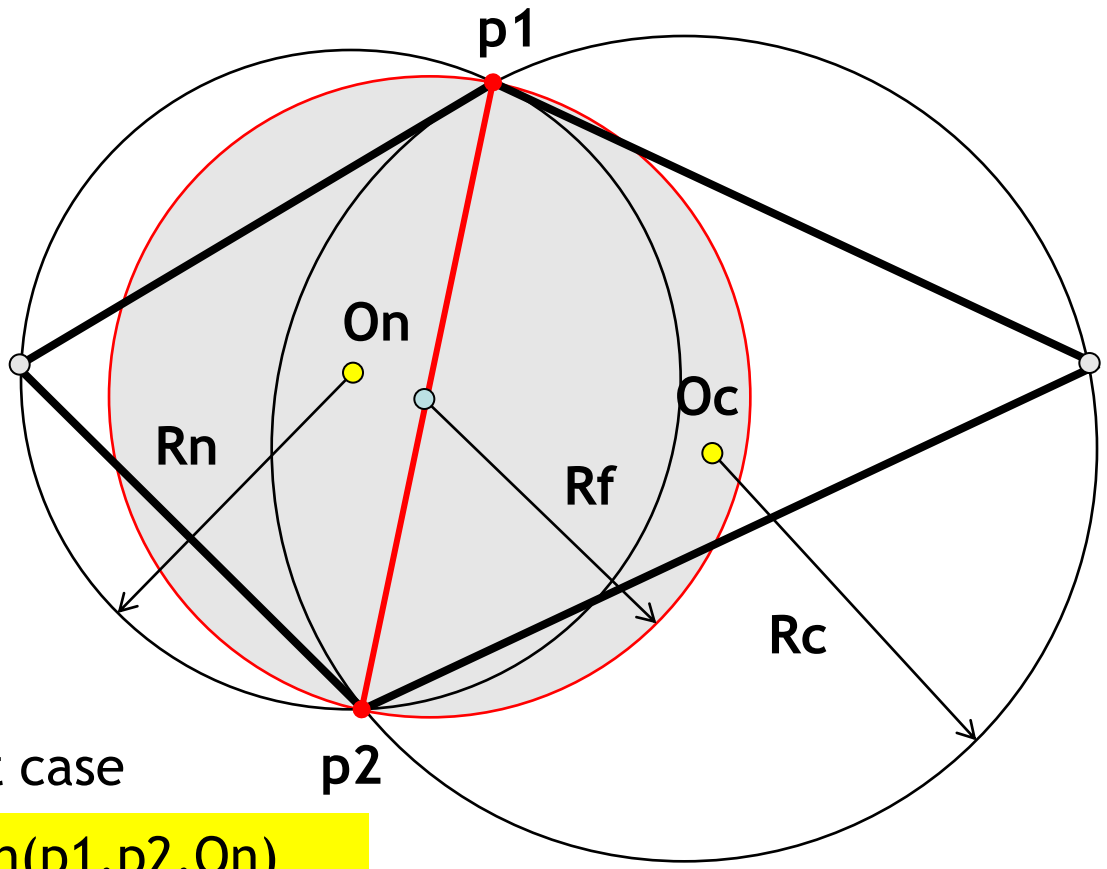
2D Alpha-Shapes (general case)



2D Alpha-Shapes (general case)

is_alpha if
alpha > Rf
AND
alpha < max(Rc,Rn)



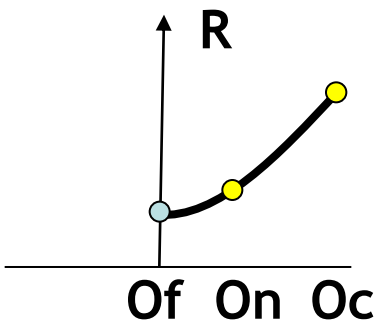


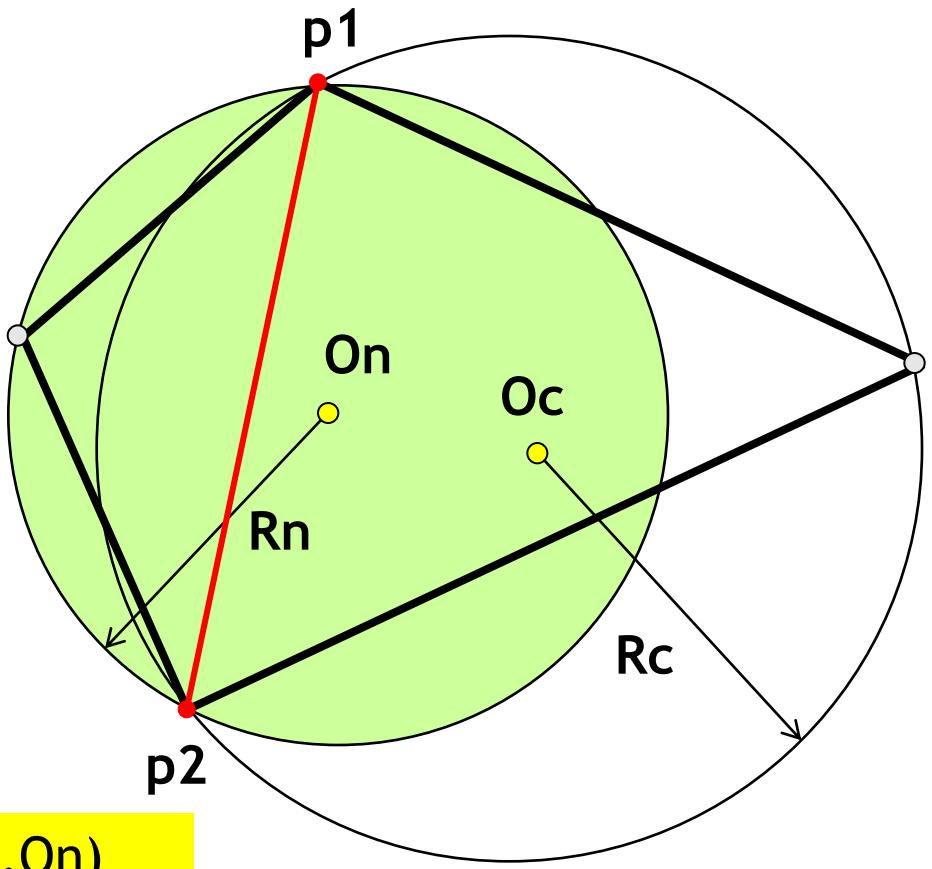
Careful: simplest case

CGAL::orientation(p1,p2,On)
!= CGAL::orientation(p1,p2,Oc)

2D Alpha-Shapes

is_alpha if
alpha >
min(Rc,Rn)
AND
alpha <
max(Rc,Rn)

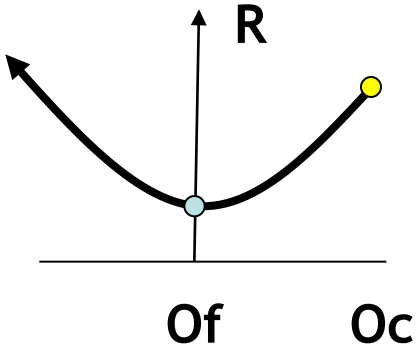


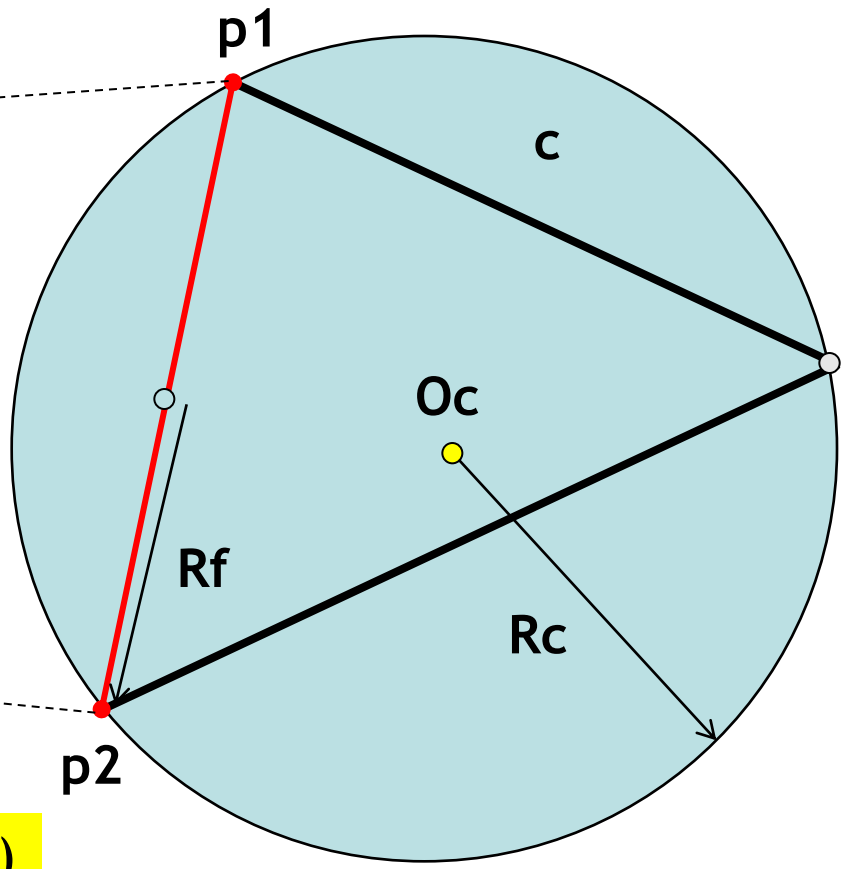


CGAL::orientation(p1,p2,On)
== CGAL::orientation(p1,p2,Oc)

2D Alpha-Shapes

is_alpha if
alpha > Rf





Dt::is_infinite(n)

CGAL::orientation(p1,p2,Oc)
== CGAL::POSITIVE