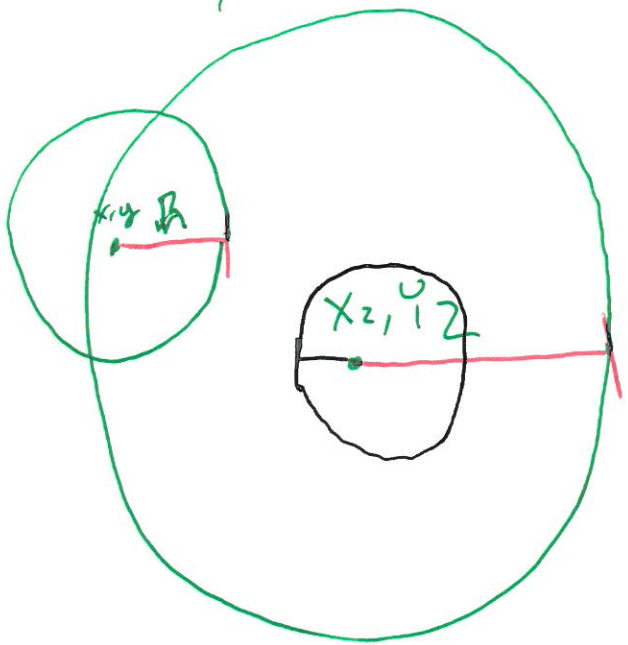
Circle / Circle Collisions



First Take

1. Take distance from (x_1, y_1) to (x_2, y_2)
2. Compare distance to sum of radii

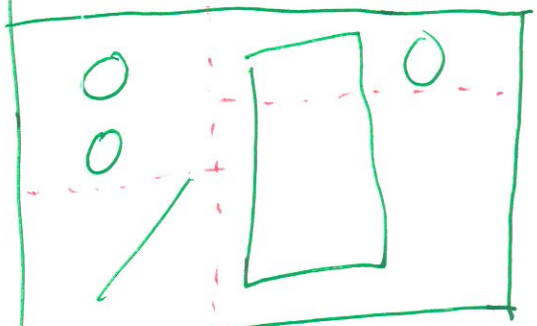
Second Take

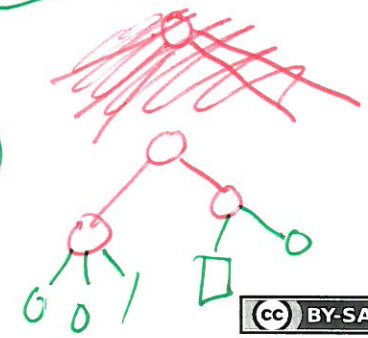
Inflate / Deflate Method

1. Add circle two's radius to circle one.
2. Compare the new circle to the center of circle two.
3. Do point/circle collision

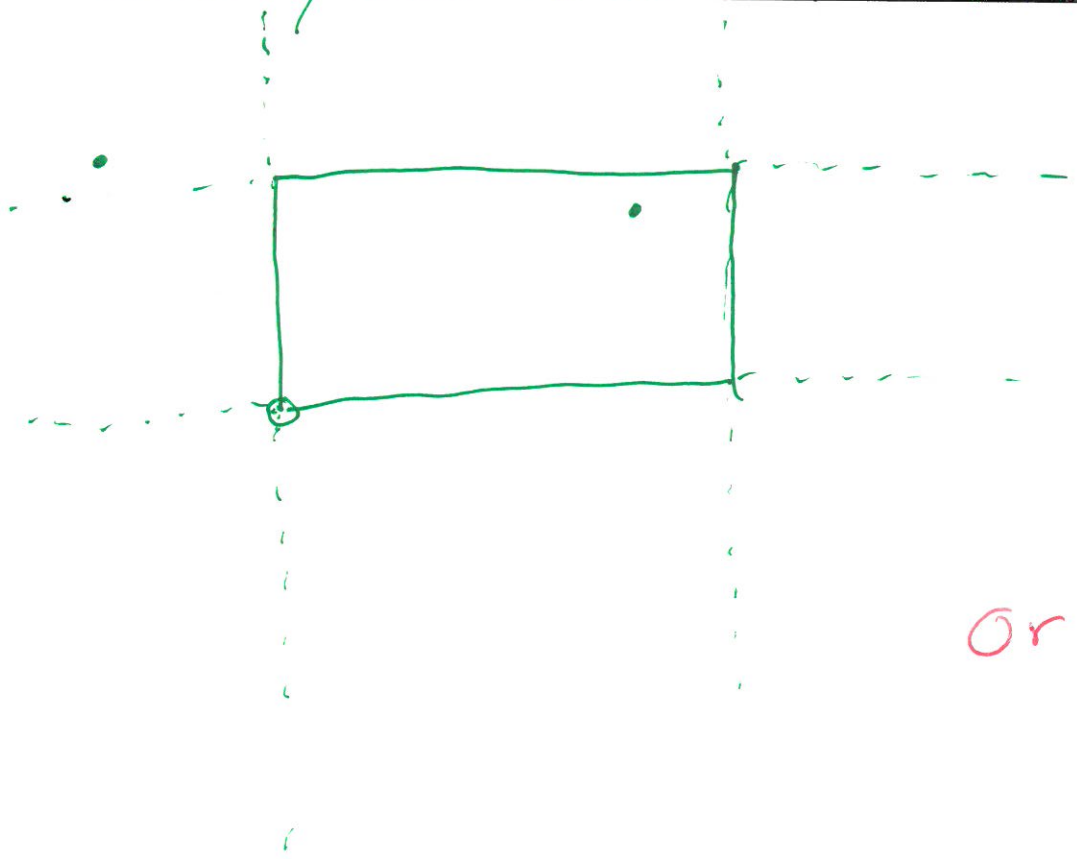
How to avoid $O(N^2)$ collision detection

Spatial Subdivision Data Structure





Point / AAR Collision



Inside Test

Is the point inside all 4 lines?

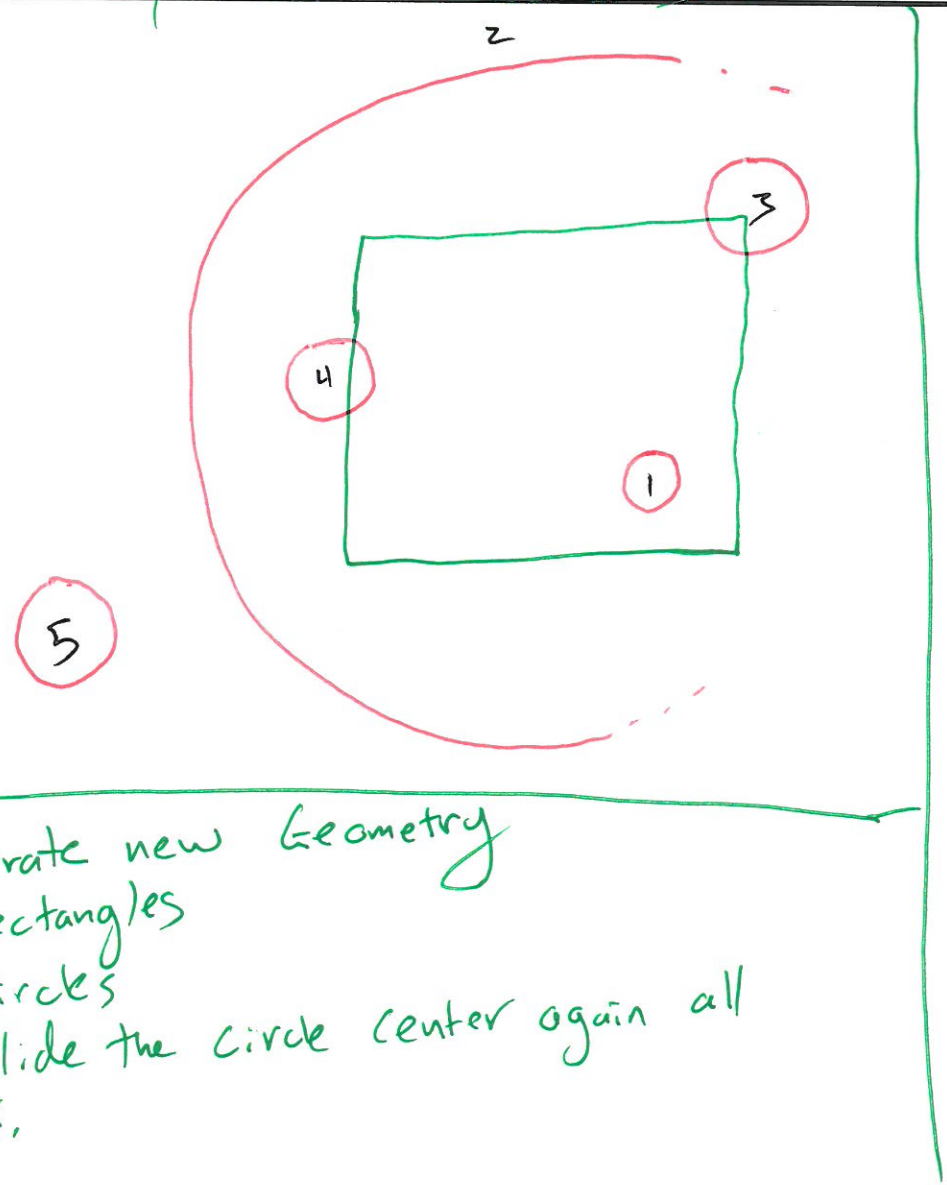
Outside Test

Is the point to the left of the AAR?
Is the point to the right?
Is the point above?
Is the point below?
Fail if any of those fail

And

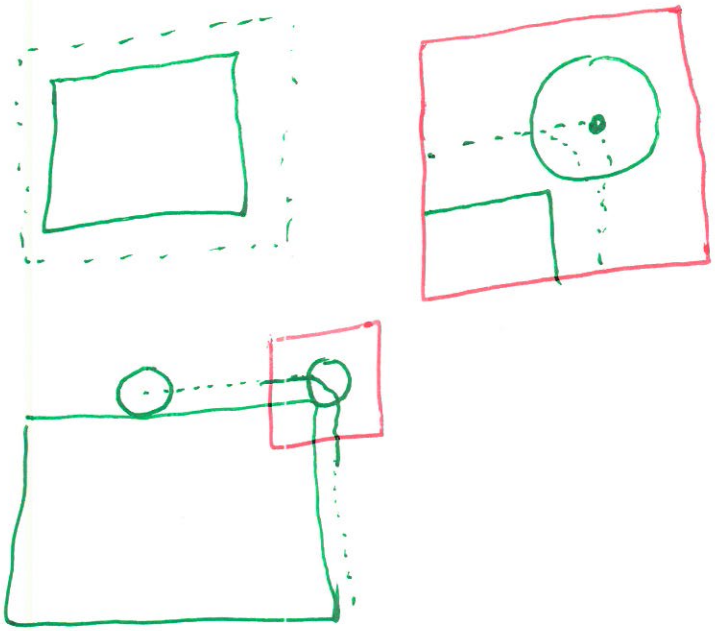
Or

Circle/AAB Collisions



Generate new Geometry
- 2 rectangles
- 4 circles
- Collide the circle center again all six.

Inflate/Deflate
Does not work!



Bad

Circle / AAR #2