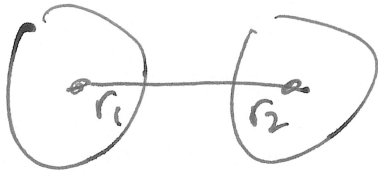


Circle Circle Intersection



D = dist btw centers

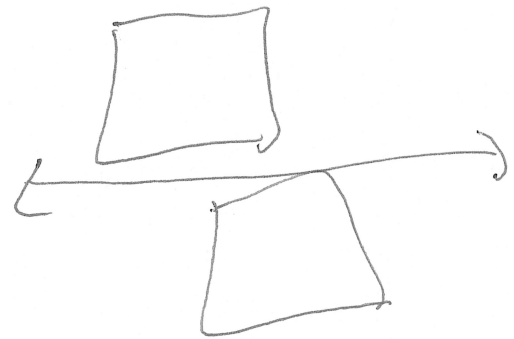
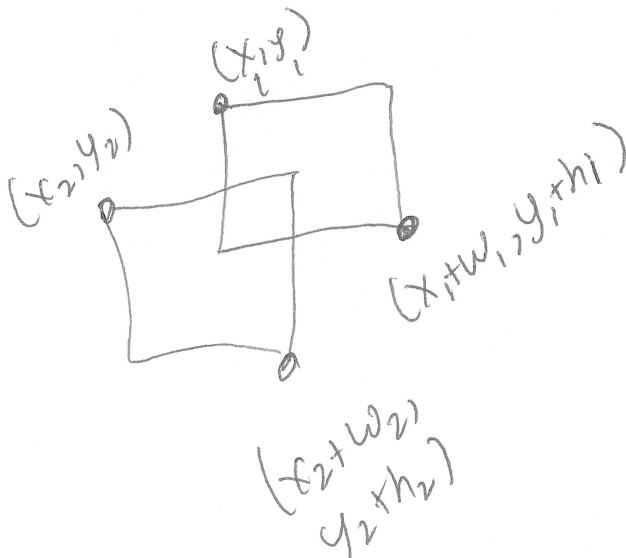
if $r_1 + r_2 < D$
no intersection



if $r_1 + r_2 \leq D$
intersect

$$(r_1 + r_2)(r_1 + r_2) < \underbrace{D + D}_{\text{ints only}}$$

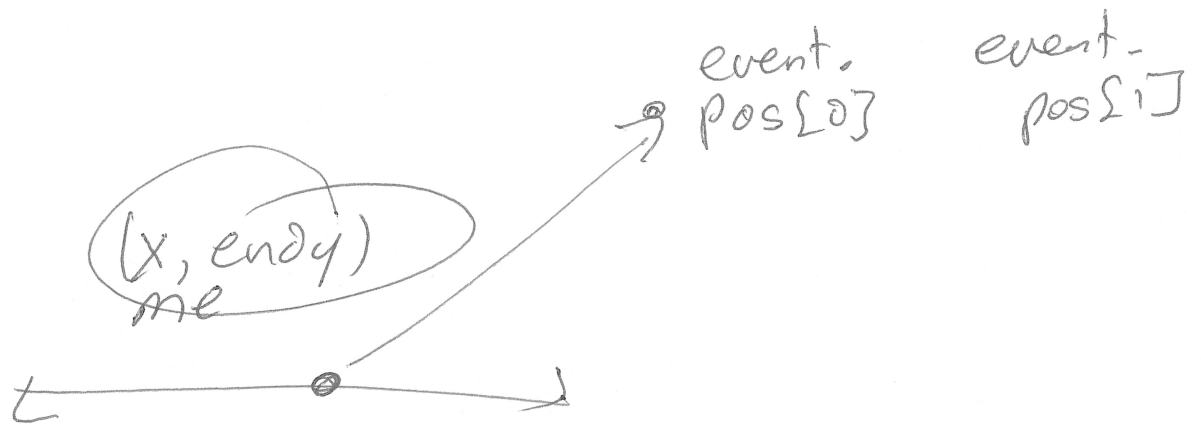
Rectangle Collision



~~$x_1 + w_1 < x_2$~~

false

$$\left\{ \begin{array}{l} y_1 + h_1 < y_2 \text{ or} \\ y_2 + h_2 < y_1 \text{ or} \\ x_1 + w_1 < x_2 \text{ or} \\ x_2 + w_2 < x_1 \end{array} \right.$$



$$\partial x = \text{event.pos}[0] - x$$

$$\partial y = \text{event.pos}[1] - \text{endy}$$

$$\text{dist} = (\partial x^2 + \partial y^2)^{0.5}$$

$$\text{ratio} = 20 / \text{dist}$$

$$\partial x = \partial x * \text{ratio}$$

$$\partial y = \partial y * \text{ratio}$$

$$\left. \begin{array}{l} \partial x = 3 \\ \partial y = 4 \end{array} \right\}$$

$$\text{dist} = \sqrt{3^2 + 4^2} = 5$$

$$\left. \begin{array}{l} \partial x = 3/5 \\ \partial y = 4/5 \end{array} \right\} \text{unit}$$



$$60 + \frac{20}{100} = 12$$

$$80 + \frac{20}{100} = 16$$