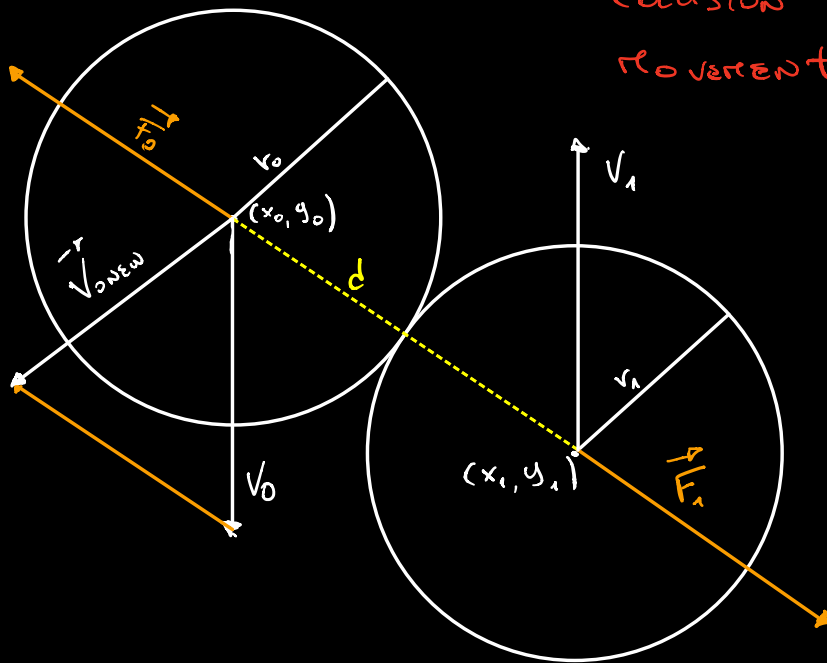Collision of 2 Balls in movement with same mass

$$d = 2r = \text{diameter} = (x_0, y_0) - (x_1, y_1) = \vec{v} - \vec{s}$$

if Balls have same size $\overset{u}{\vec{v}}$ $\overset{u}{\vec{s}}$

$$dx = (x_0 - x_1)$$
$$dy = (y_0 - y_1)$$

$$\vec{F_0} = \vec{u} \cdot \alpha$$

Unit Vector $\downarrow$ Velocity
in the direction
of d

α in rg case is a constant

$$\vec{a} = \frac{d}{\|d\|}$$

$$\|d\| = d \cdot d^T = \sqrt{d_1^2 + d_2^2}$$

$$\vec{V_{0_{new}}} = \vec{V_0} + \vec{F_0}$$
$$\vec{V_{1_{new}}} = \vec{V_1} + \vec{F_1}$$

Same thing for $\vec{F_1}$, but use the unit vector or the velocity in opposite direction.