

First order differential equations:

$$\frac{dy}{dx} = f(t, y)$$

Exact: $M(x, y) + N(x, y) \frac{dy}{dx} = 0$

$$\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$$

Separable: $\frac{dy}{dx} = p(x)q(y)$

Autonomous: $\frac{dy}{dx} = f(y)$

Linear: $\frac{dy}{dt} + p(t)y = g(t)$

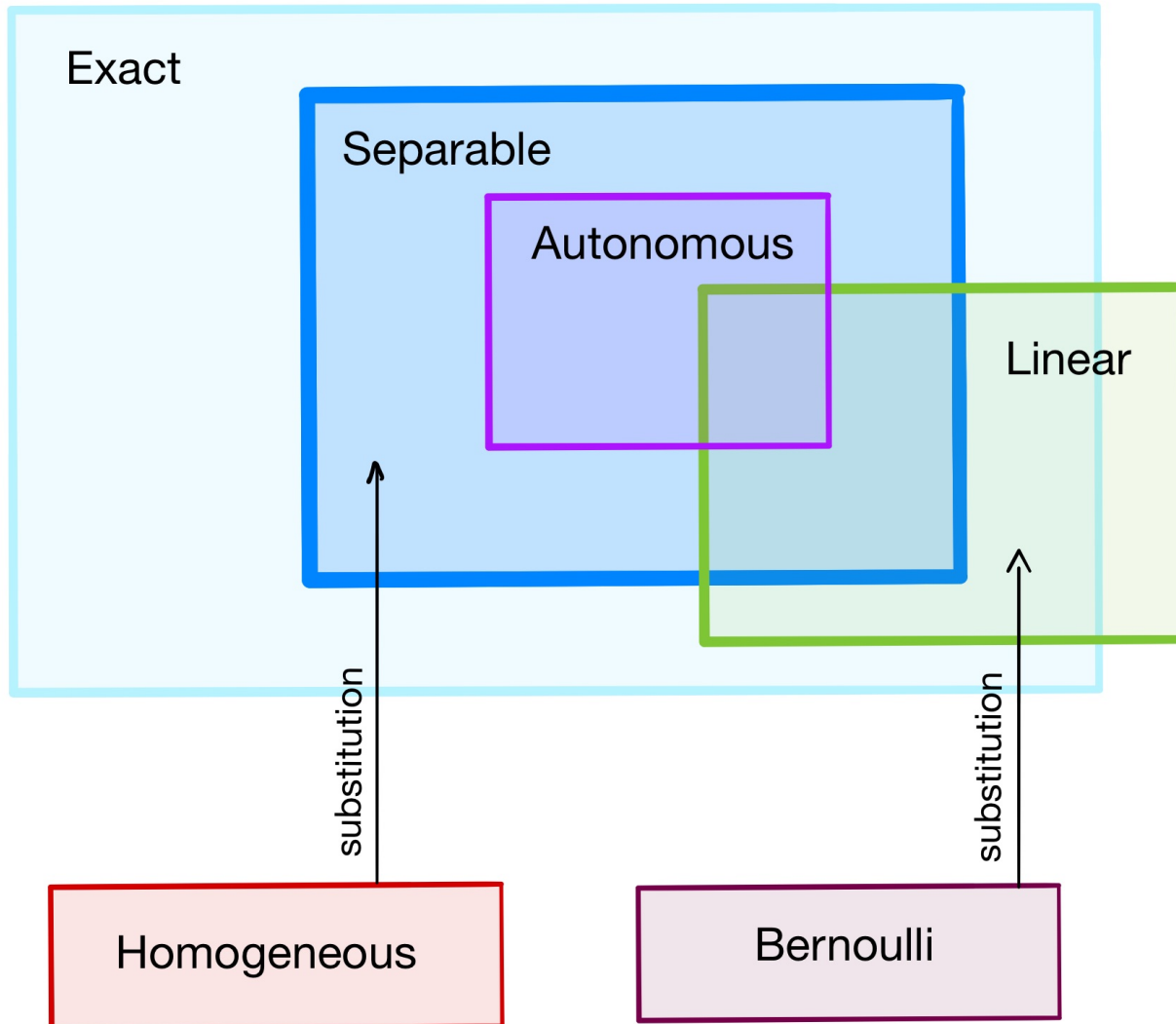
Homogeneous:

$$M(x, y) + N(x, y) \frac{dy}{dx} = 0$$

$M(x, y), N(x, y)$ homogeneous
of the same degree

Bernoulli:

$$\frac{dy}{dx} + q(x)y = r(x)y^n$$



Homogeneous

Bernoulli