

Definition (Continuous-time dynamical system). A dynamical system on \mathbb{R}^n may be defined by a function

$$f : \mathbb{R}^n \rightarrow \mathbb{R}^n.$$

A trajectory of a dynamical system is a function $x : \mathbb{R} \rightarrow \mathbb{R}^n$ such that

$$\dot{x}_t = f(x_t).$$

We use the notation \dot{x} to abbreviate dx/dt .