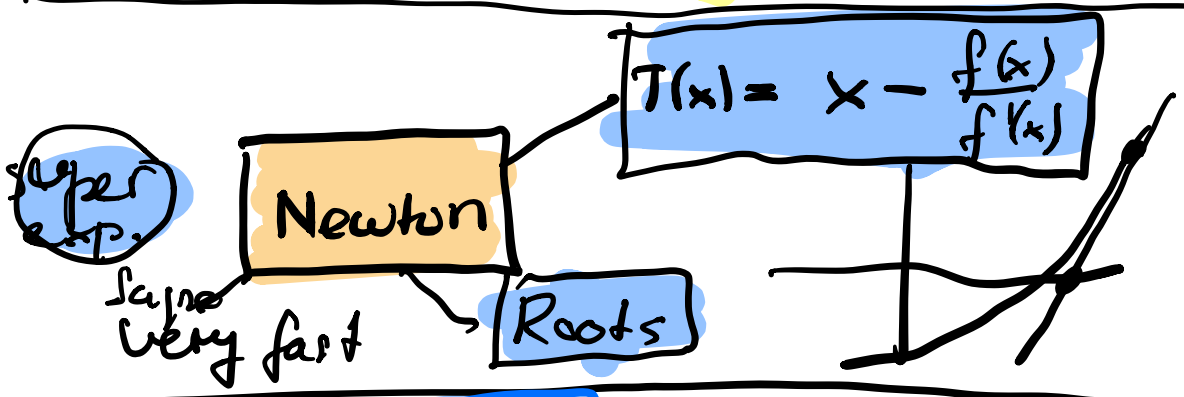
Unit 28 Review



min = stable equil.

Catastrophes

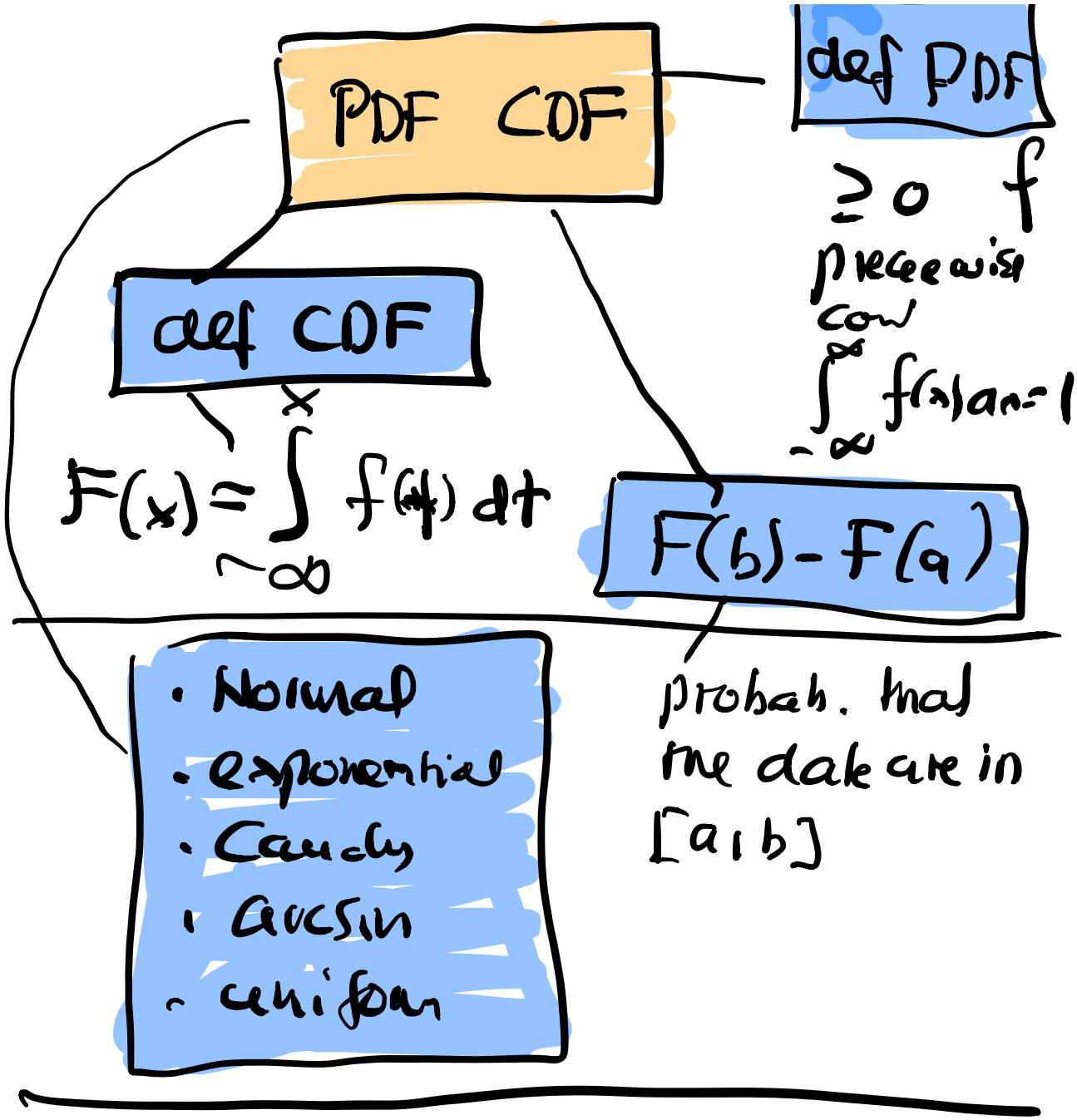
$f_c(x)$ family of functions

bifurcation diagram

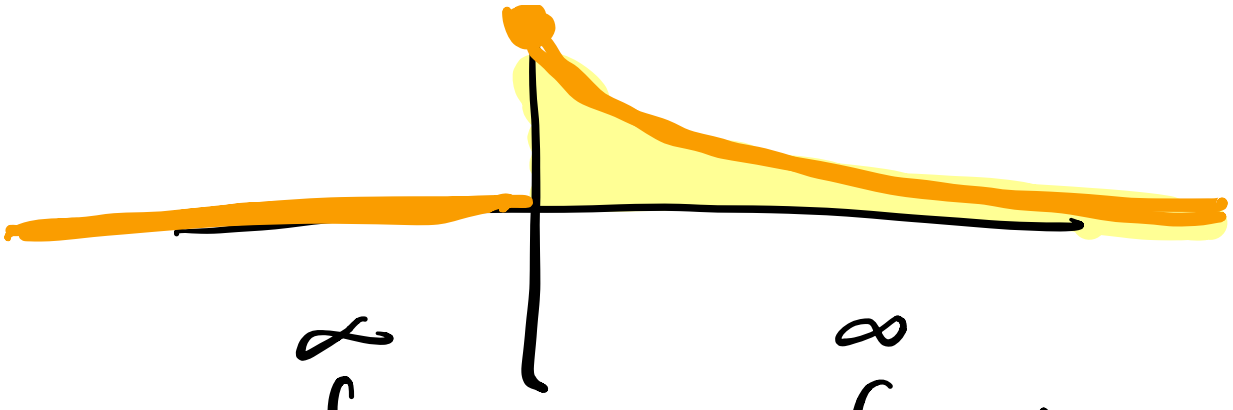
< parameter

Catastrophe!

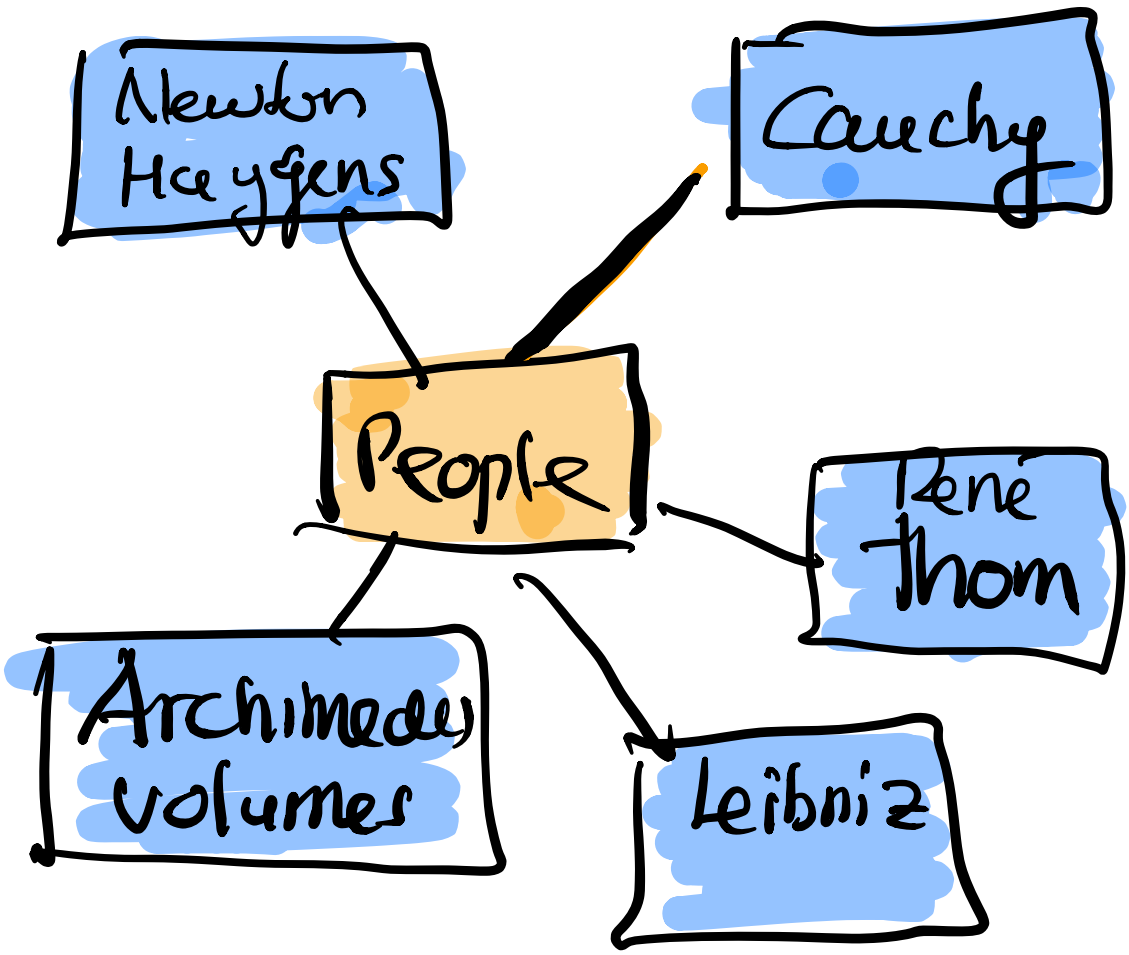
A parameter c where the # of minima changes

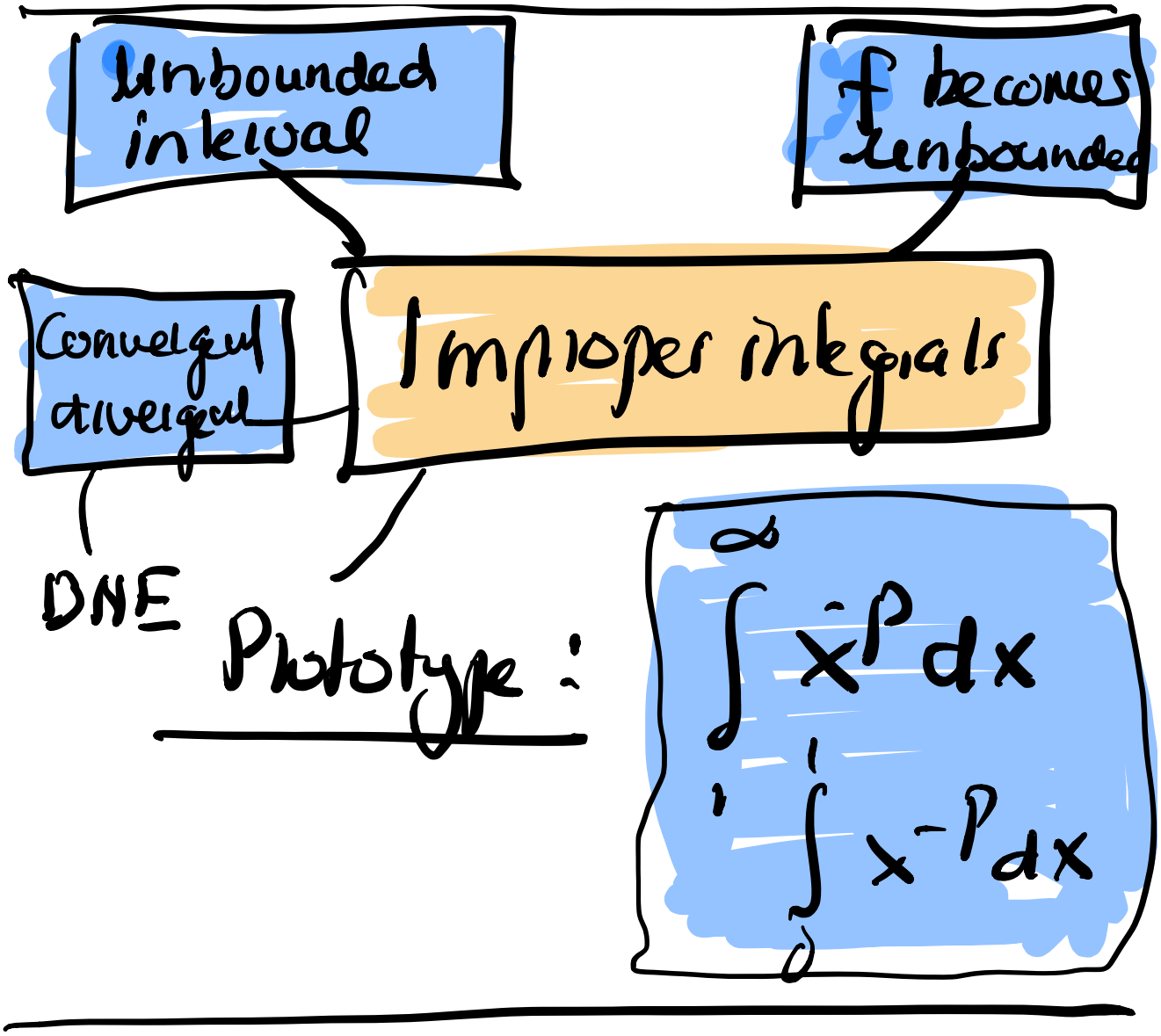


$$f(x) = \begin{cases} e^{-x} & x \geq 0 \\ 0 & \text{else} \end{cases}$$



$$\int_{-\infty}^{\infty} f(x)\,dx = \int_{0}^{\infty} e^{-x}\,dx = 1$$




Unbounded interval
f becomes unbounded
Improper integrals
Converges
diverges
DNE
Prototype:
$\int_1^\infty x^{-p}\,dx$
$\int_0^1 x^{-p}\,dx$