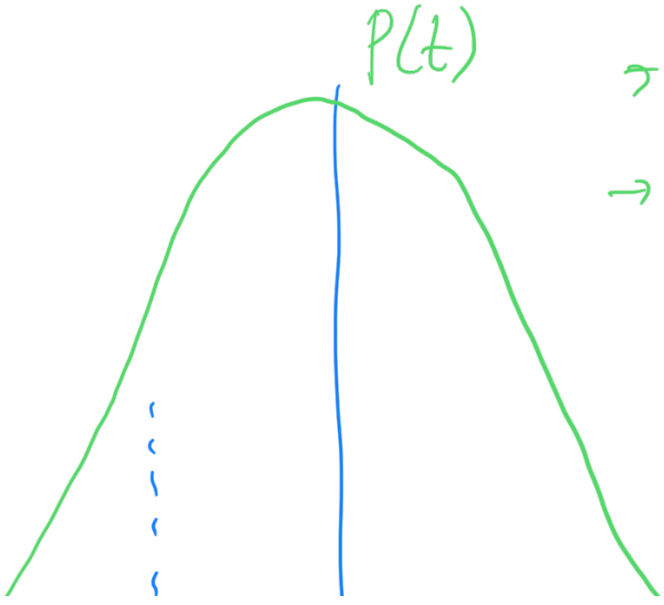
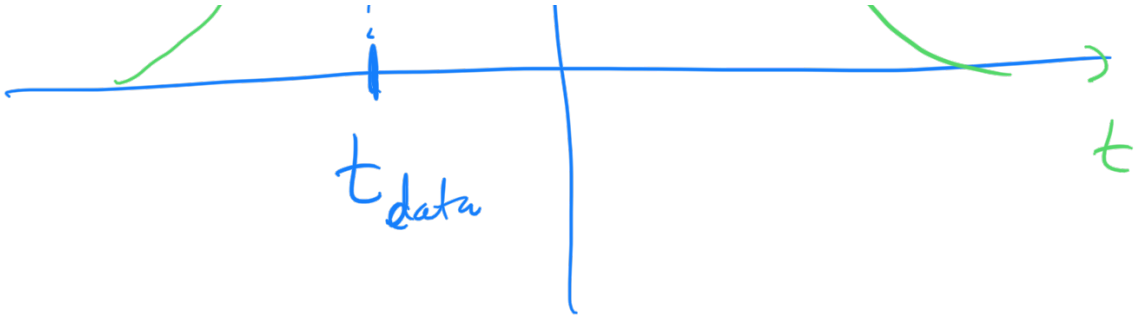
Physics 341 - Lecture 13

$$z = \frac{\bar{x} - \mu}{\sigma/\sqrt{N}}$$ ← stats. norm. cdf, ppf, rvs

$$t = \frac{\bar{x} - \mu}{s/\sqrt{N}}$$ ← ?



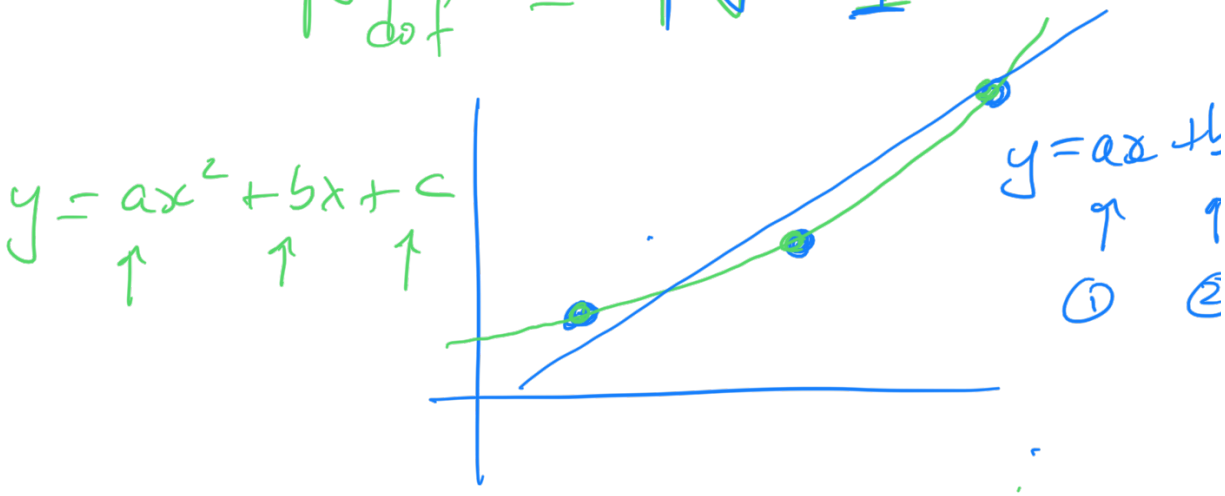
→ symmetric
→ for N → "large"
N ≥ 50
P(t) ≈ P_G(t)
≈ z-dist

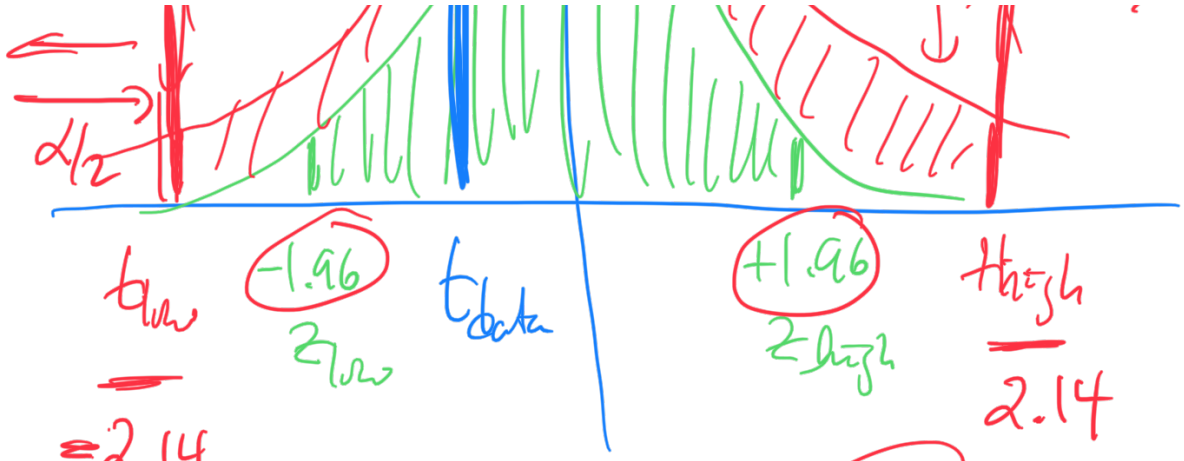


$$t\left(N_{dof}\right)$$

$$\uparrow$$

$$N_{dof} = N - 1$$





$\alpha = .05$ | 95% | CL

Step 1:

Is σ known ?

YES

NO

z-distribution

stats.norm

t-distribution

stats.t

HW

$$z_{data} = \frac{\bar{x} - \mu}{\sigma/\sqrt{N}}$$

$$t_{data} = \frac{\bar{x} - \mu}{s/\sqrt{N}}$$

stats.norm.ppf(α)

$\frac{\alpha}{2}$

$1 - \frac{\alpha}{2}$

stats. ppf(α $\frac{\alpha}{2}$ $1 - \frac{\alpha}{2}$

psychology profs

econ profs!!

Population		Sample
Mean	μ	$\bar{x}$
Std.	σ	s

Dev.

$$\bar{x} = \frac{1}{N} \sum_{i=1}^{N} x_i$$

$$S = \sqrt{\frac{1}{N-1} \sum_{i=1}^{N} (x_i - \bar{x})^2}$$

R ↑ M S .

N(