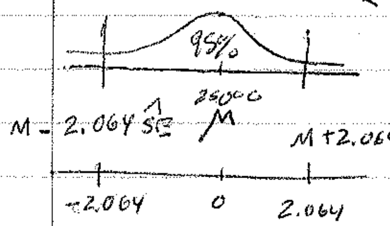
10/27 Inferential Study

pop.	unknown (pop.) quantity of main interence	μ = pop. mean body temp. in the species after equilibrating to 24.3° temp
sample.	Estimate of μ	$\bar{Y} = 25.0°C$
imaginary	give or take for $\bar{Y}$ as est. of μ	$\hat{SE}(\bar{Y}) = 0.27°C$
imaginary	95% confidence interval for μ	$\bar{Y} \pm 2.064 \frac{s}{\sqrt{n}}$ $25.0 \pm (2.064)(0.27) = \bar{Y} \pm T\hat{SE} = (24.5, 25.6)$

Fisher (1915) proved W.S. Gossett's theory about T-curves:

$\hat{SE} = 0.27°C$ ← 95% confidence interval

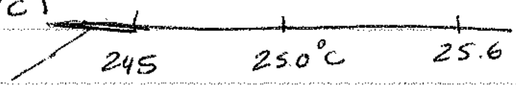


T-curve 24

$\bar{Y} \pm 2.064\ \hat{SE}_{0.95}(\bar{Y})$ = 95% confidence interval for μ

T_{n-1}

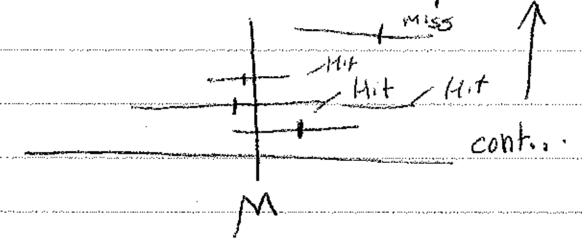
$25.0°C \pm 2.064(0.27°C) = (24.5°C, 25.6°C)$



Confidence level	What's Left in tails
95%	5%
99%	1%
90%	10%

24.3 = Theory value μ_0 since μ_0 is not in 95% CI, the data does not support the theory at that confidence level

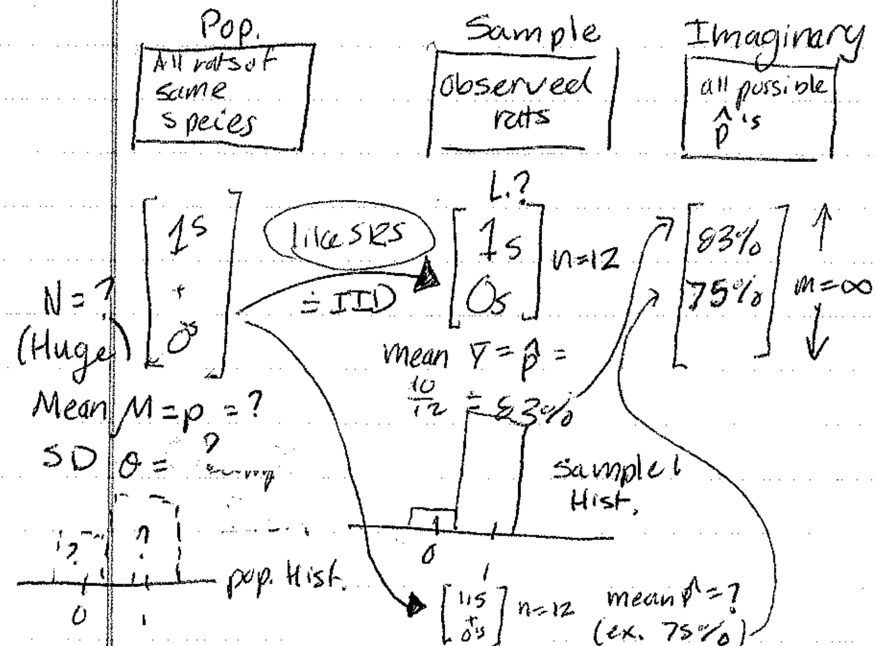
Jerzy Neyman (1893-1981) 88 Berkeley - Draper worked with him
Toast "To all the ladies present and some of those absent"



95% hits

cont...

AMS 7
Notes
Julia Larson
2
10/27



- long range mean: expected value $\hat{p}$, EV of $\hat{p} = E_{IID}(\hat{p}) = E_{IID}(\bar{Y}) = M = p = E_{IID}(\hat{p}) = p$
  $\hat{p} = p$
- SE of $\hat{p} = SE_{IID}(\hat{p}) = SE_{IID}(\bar{Y}) = \frac{\sigma}{\sqrt{n}}$

Inferential summary

unknown (pop) quantity of main interest	p = pop. porportion of rats that would turn left
estimate of p	$\hat{p} = 83\%$
give or take for $\hat{p}$ a f est. of p	$\hat{SE}(\hat{p}) = \sqrt{\frac{(0.83)(0.17)}{12}} = 11\%$
95% CI for p	

MF: If pop. has only 2 values σ – $\left(\text{larger value}\right) - \left(\text{smaller value}\right) \cdot \sqrt{\left(\text{porportion of larger value}\right)\left(\text{porp. of smaller}\right)}$

$\sigma = (1-0)\sqrt{p(1-p)}$

MF: $\sigma = \sqrt{p(1)}$