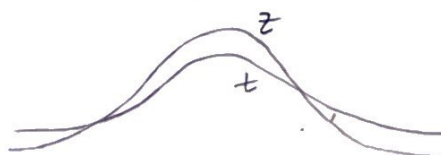


Lesson 8 - Generalization - One sample t-test

Lesson Objectives 1. How to do hypothesis test w/ quantitative data

	Categorical (one proportion)	Quantitative (one mean)
Statistic	\hat{p} (observed proportion)	\bar{x} (sample mean) s (sample standard deviation)
Parameter	π (population proportion)	μ (population mean) σ (population sd)
	$SD(\hat{p}) = \sqrt{\frac{\pi(1-\pi)}{n}}$	$SD(\bar{x}) = \frac{\sigma}{\sqrt{n}} \rightarrow$ approximated by $\frac{s}{\sqrt{n}}$ (SD of sample means)
Standardized Statistic	$z = \frac{\hat{p} - \pi}{\sqrt{\frac{\pi(1-\pi)}{n}}}$	$t = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}}$
Validity Conditions	≥ 10 successes ≥ 10 failures	Symmetric <u>OR</u> ≥ 20 observations & not strongly skewed (sample distribution)
P-value	$H_a >$ $1 - pnorm(z)$ $H_a <$ $pnorm(z)$ $H_a \neq$ $2^*(1 - pnorm(abs(z)))$	$1 - pt(t, n-1)$ $pt(t, n-1)$ $2^*(1 - pt(abs(t), n-1))$



"uncertainty" adds weight to the tails

Skew

Left skew

