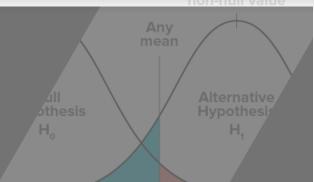
## Theoretical non-null value

## HYPOTHESIS TESTING



 $H_0$ 

Our default hypothesis. Indicative of no change, no difference, no effect Harror ror

The <u>alternative</u> hypothesis. The hypothesis we take on when we reject our null hypothesis

Term	Formula / Symbol	Description
Null Hypothesis	$H_0$	The "default" hypothesis; usually no change, no effect, etc
Alternative Hypothesis	$H_1$ or $H_a$	
Significance Level, False Positive Rate	α	P(FP) = P(Type I Error)
Statistical Power	$1 - \beta$	P(Reject $H_0$ when $H_0$ is false)
False Negative Rate	β	P(FN) = P(Type II Error)
p-value	p	P(We observed this result due to chance   $H_0$ is true)

**HOW TO KNOW** 

## TYPE I AND TYPE II ERROR

I determined that the things were different but they were not actually different. I made a prediction of something that wasn't actually the case. A False positive. I said it was going to rain and it did not rain.

I determined that things were approximately the same when they were in fact different. I failed to make a prediction that was actually the case. A False negative. I predicted weather would remain fair when it actually changed to rain

		H <sub>o</sub> True	H <sub>o</sub> False
	Reject H₀	Type I Error	Correct Rejection
	Fail to Reject H₀	Correct Decision	Type II Error







