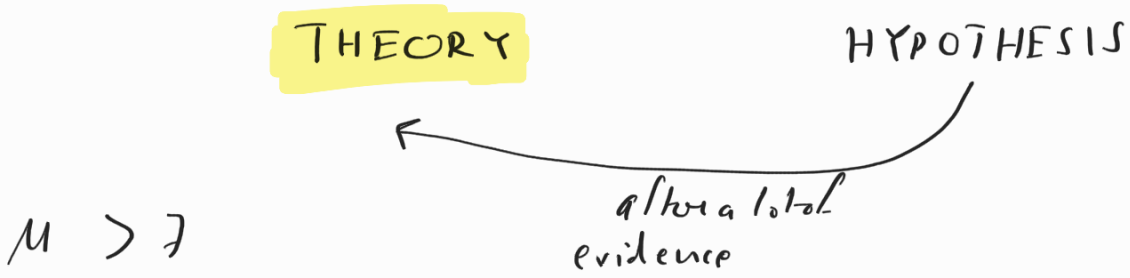


$\mu > 7$

NULL HYPOTHESIS H_0 : claim to be tested

ALTERNATE HYPOTHESIS H_A : alternative claim that you are considering

THE SKEPTIC WILL NOT ABANDON H_0 UNLESS the evidence is STRONGLY in favour of H_A.

$H_0 = \mu \geq 7$

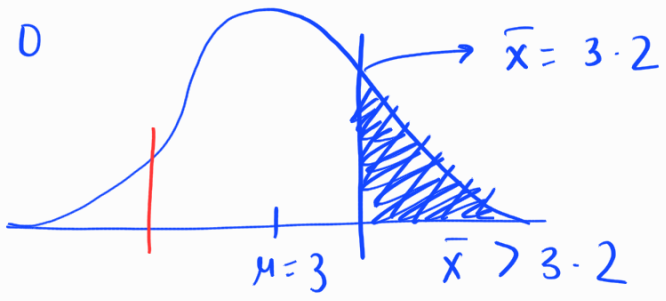
$$p\text{-value} = P(\text{observed a more extreme outcome} \mid H_0 \text{ is true})$$

α = significance level (1%, 5%, 10%)

p-value: $P(\bar{x} > 3.2 \mid H_0 : \mu = 3)$

$\bar{x} \sim N(\mu = 3, SE = 0.246)$

$n = 50$



z value at $\bar{x} = 3.2$ when $\bar{x} \sim N(3, 0.246)$

$$= \frac{3.2 - 3}{0.246}$$

$$\approx 0.81$$

proxim: for $z > 0.81$, $p(z > 0.81) = 0.209$

for $p = 0.209$, there is a 20.9% chance that $\bar{x} > 3.2$

$\alpha = 15\%$, $\alpha = 30\%$.

$\alpha = 20\%$.

$$p(\bar{x} > 3.2 \text{ OR } \bar{x} < 2.8 \mid \mu = 3)$$

$$= [-0.209, 0.209]$$

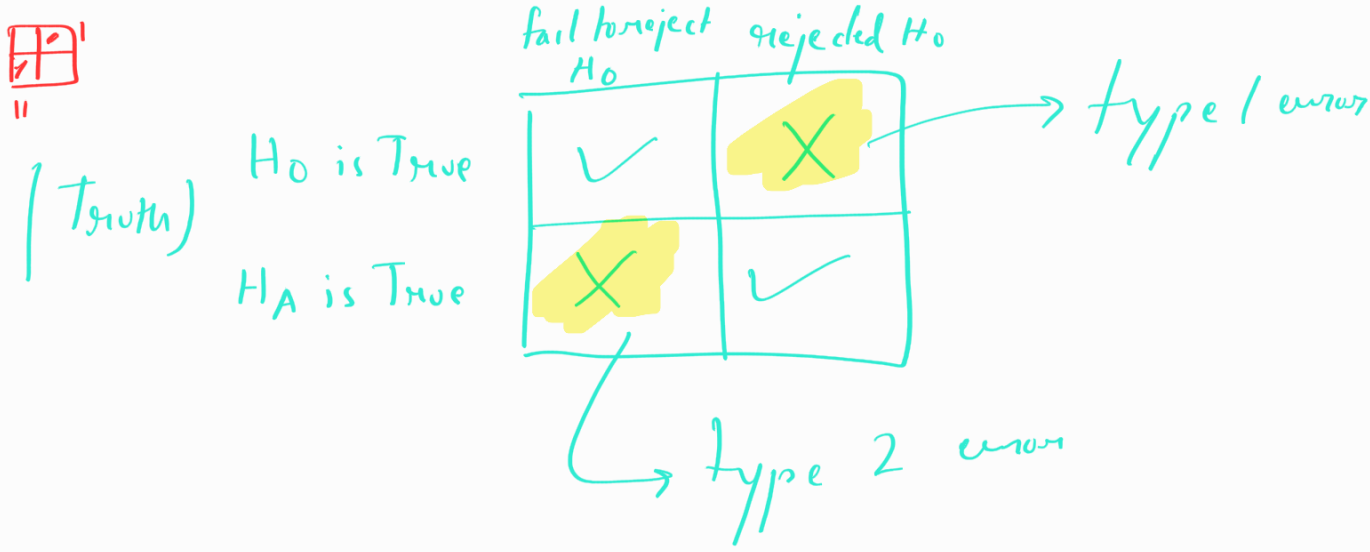
$$= p(z > 0.81) + p(z < -0.81)$$

$$= 2 \times p(z > 0.81)$$

$$= 0.418 \text{ or } 41.8\%.$$

$\alpha = 50\%$.

$\alpha = 30\%$.


fail to reject H_0
rejected H_0
(Truth)
H_0 is True
H_A is True
✓
X
X
✓
type I error
type 2 error