Hypothesis Test 1

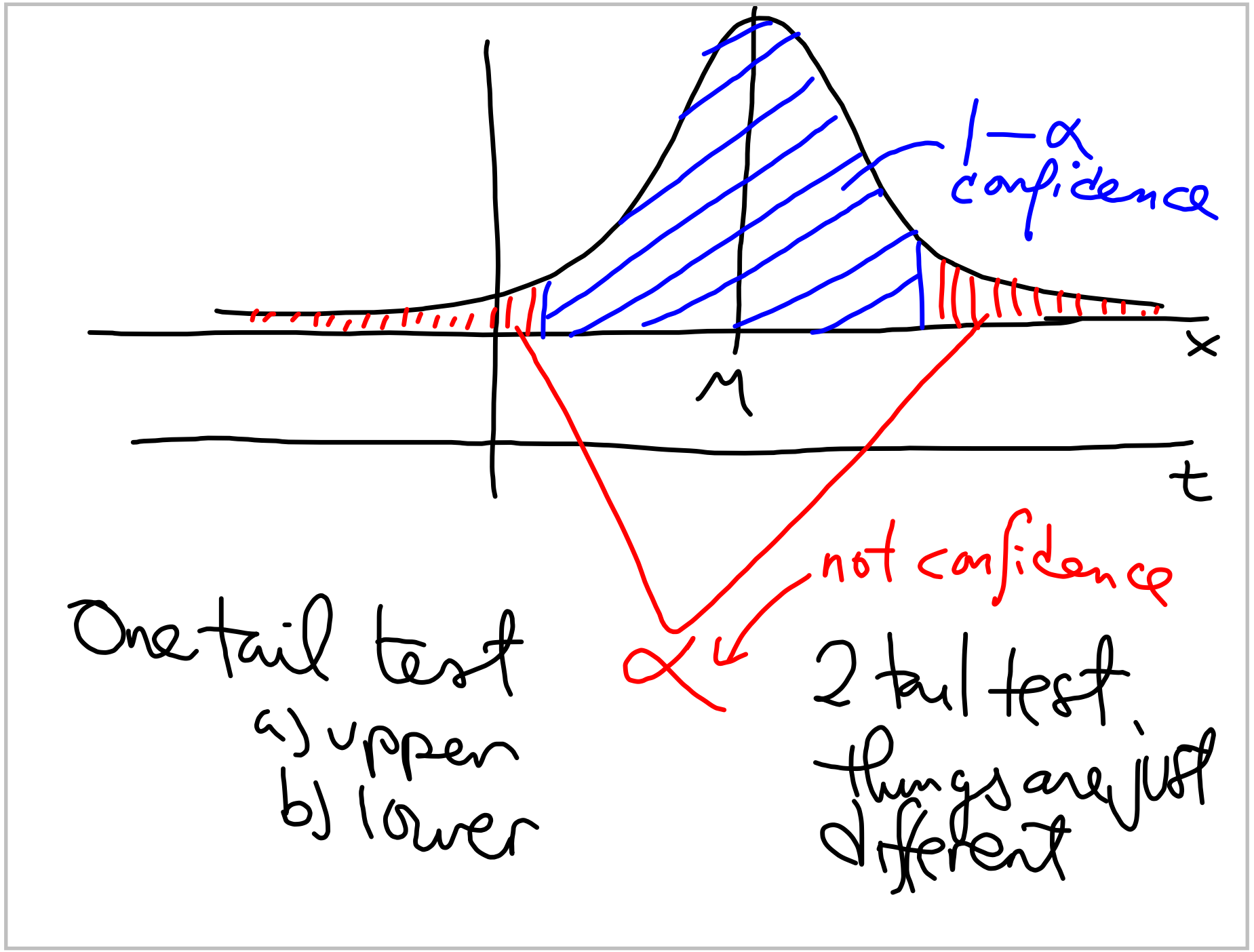
t is good for $n = 10 \longrightarrow \infty$

but t must be used for $n < 30$

t-table : $df = n - 1$

degrees of freedom

sample size



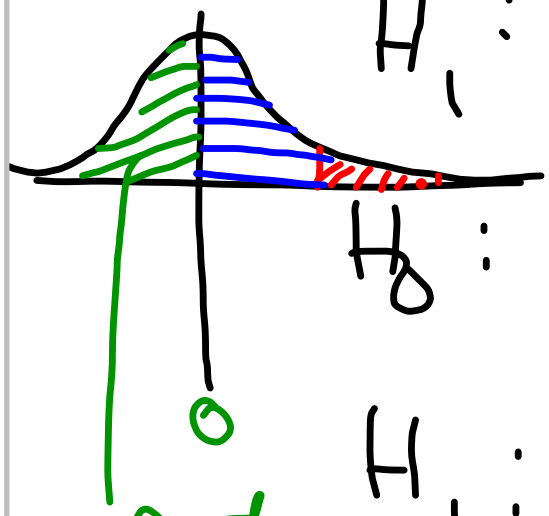
One tail test
a) upper
b) lower

2 tail test.
things are just
different

Suppose hypothesis

H_0: diddle is ?

H_1: diddle is not ? $\alpha(2)$



H_0: children dont have parents w/ mental illness

H_1: children have parents w/ mental illness

not biologically possible

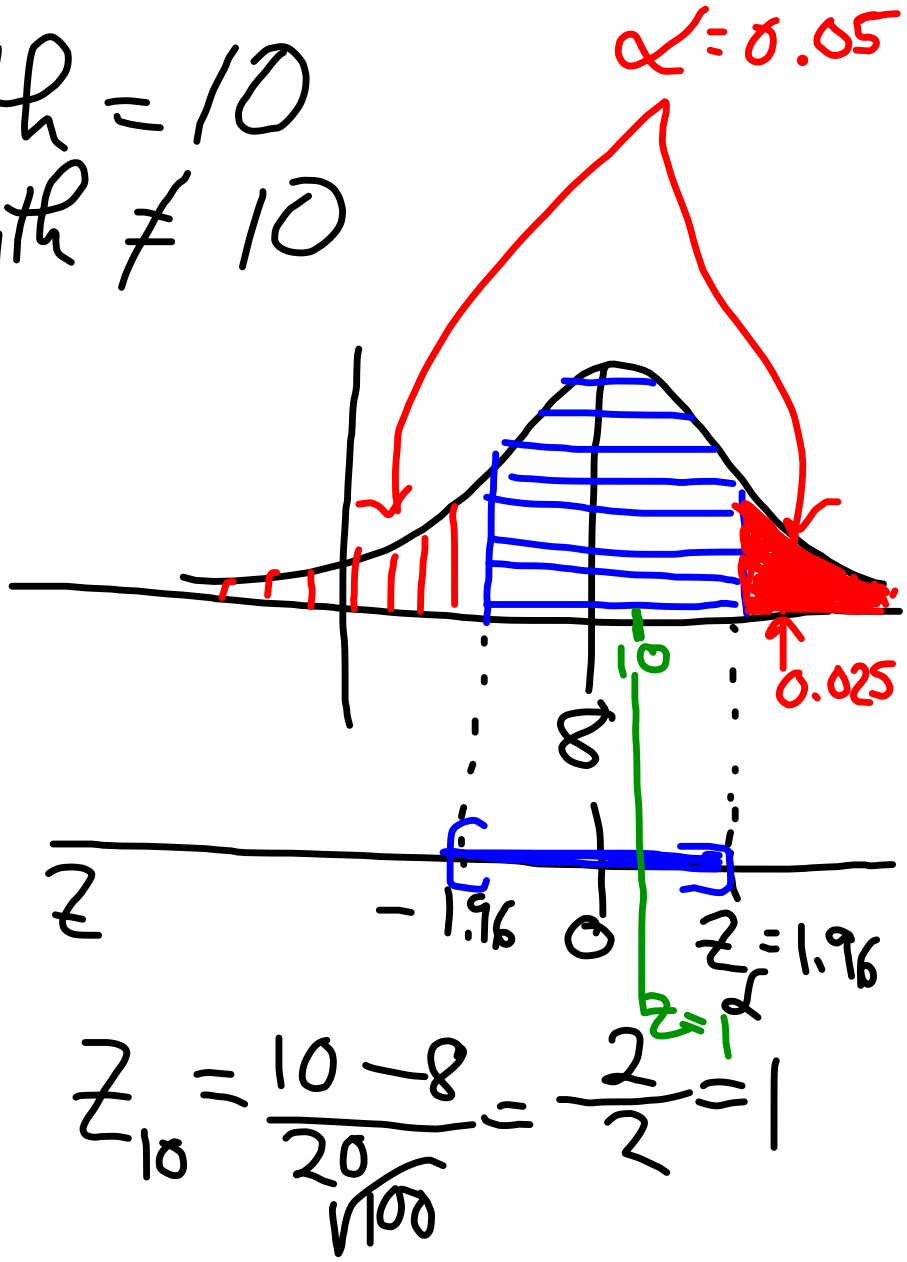
Errors of Hypothesis Testing

Type I - α ← reject H_0 when you shouldn't

Type II - β ← accept H_0 when you shouldn't

Ex: $\begin{cases} H_0: \text{Fish length} = 10 \\ H_A: \text{Fish length} \neq 10 \end{cases}$

- $\bar{X} = 8$
- $\sigma_x = 20$
- $n = 100$
- $Z = \dfrac{X - \mu}{\sigma_x / \sqrt{n}}$
- $\alpha = 0.05$



$$Z_{10} = \frac{10 - 8}{\frac{20}{\sqrt{100}}} = \frac{2}{2} = 1$$

If you can reject H_0, this does not $\Rightarrow$ you can accept H_A.

You must test H_A.

EX:

H_0: Average IQ = 150

H_A: Average IQ < 150

$\alpha = 0.01$

$n = 81$

$\sigma_x = 3$

$\bar{x} = 110$

$$z_{150} = \frac{150 - 110}{3/\sqrt{81}}$$

$$= \frac{40}{3/9} = 120$$