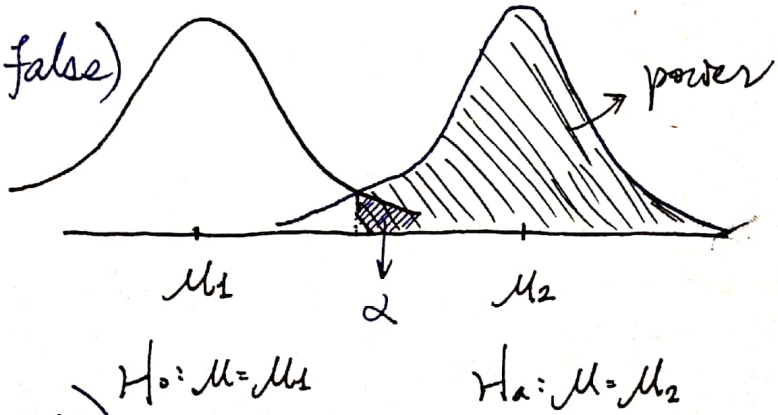
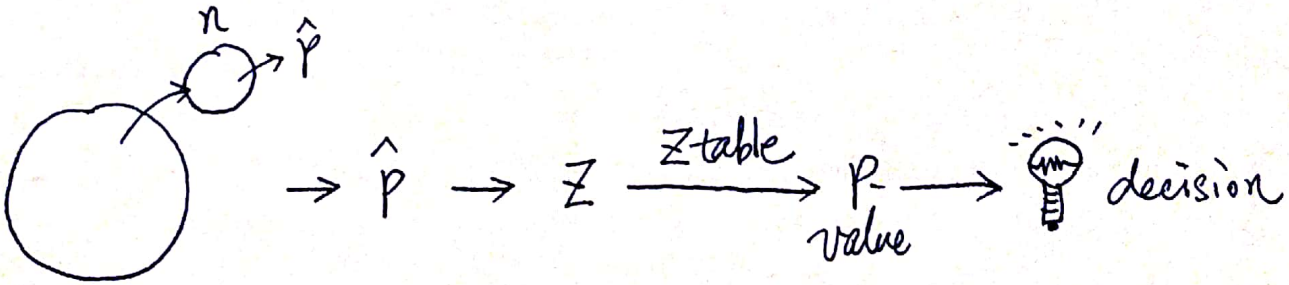
Hypothesis Test

- significant level α:
  - The probability of making a wrong decision to accept the alternative hypothesis while the null hypothesis is true
  - α = 1 - confidence level

- power
  - P(rejecting H_0 | H_0 false)
    = 1 - P(not rejecting H_0 | H_0 false)
    = P(not making type II error)
  - How to increase the power?
    - Increase α
      (Type I error will increase too)
    - increase sample size



- Z test (for proportions)
  - $Z = \dfrac{\hat{p} - p_0}{\sqrt{\dfrac{p_0(1-p_0)}{n}}}$ (calculate how many standard deviations away between H_0 statistic and sampling statistic)



- T test (for mean)

  - $t = \dfrac{\bar{X} - \mu_0}{\dfrac{S_x}{\sqrt{n}}}$