

# Assignment 1

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## Exercise 1

(Open question) Give an example of parametric methods you know, its associated assumptions, and what limitations you think it has.

## Exercise 2

Stanton (1969) investigated the problem of paroling criminal offenders. He studied the behavior of all male criminals paroled from New York's correctional institutions to original parole supervision during 1958 and 1959. The parolees were observed for 3 years following their releases or until they exhibited some delinquent parole behavior.

In a study involving a very large number of subjects, Stanton considered criminals convicted of crimes other than first- or second-degree murder. He found that approximately 60% of these parolees did not have any delinquent behavior during the 3 years following their releases.

During the same period, Stanton found that 56 of the 65 paroled murderers (first- or second-degree murderers who were also original parolees) in the study had no delinquent parole behavior.

Let a success correspond to a male murderer on parole who does not exhibit any delinquent parole behavior in the 3-year observation period.

It is of interest to investigate whether murderers on parole have higher risks than criminals convicted of lesser crimes.

- (1) Specify the hypotheses you are interested to test.
- (2) What test is appropriate? Explain the assumptions underlying the chosen test in this context.
- (3) Choose one assumption from above, describe a situation in which this assumption is violated.
- (3) Perform the test chosen above, and make conclusions.
- (4) Estimate the probability of a male murderer on parole who does not exhibit any delinquent parole behavior in the 3-year observation period, i.e.  $p$  and its 95% confidence interval.