LECTURE OUTLINE
A SHORT Project

Professor Leibon

Math 50

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Intro

This is a course that deals primarily with developing the language of inferential statistics. The goal of the following short project is to make sure that you've explored the difference between the Bayesian and a Frequentists analysis of data. A Bayesian analysis is one based on the posterior distribution, while a Frequentist analysis essentially uses only the likelihood function (hence will not require a prior). Slides 3 and 4 are road maps to the various statistical ideas involved when using the Bayesian and a Frequentists view points. You will need to understand these ideas well enough to analyze some data of your choice (**You may use the Iraq data I sent you**). Your project is to do the following:
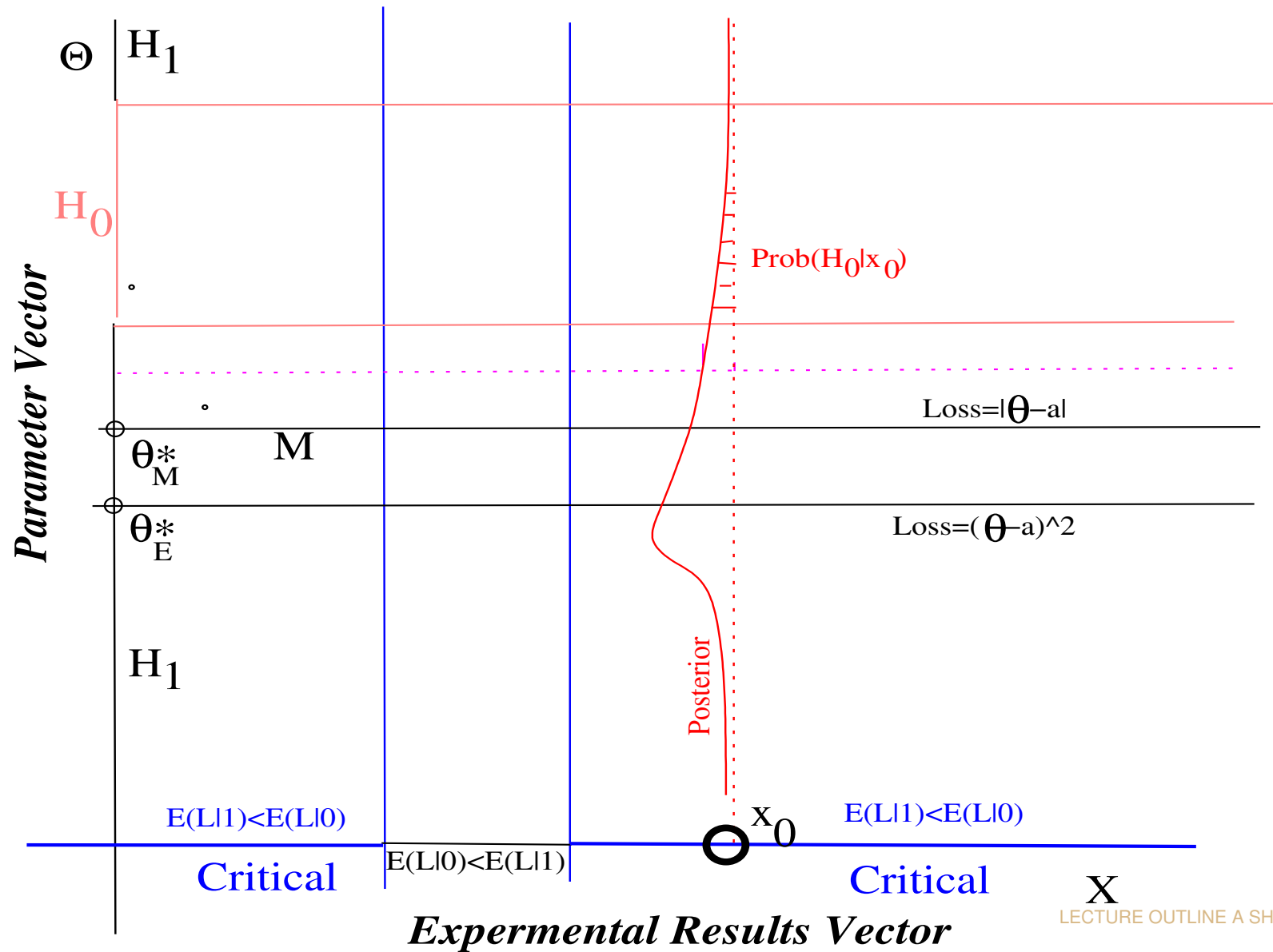
Short Project: Two Parts

1. Compare and contrast a Bayesian and a Frequentists estimate of at least one of parameter related to your data. (**If you'd like, then you may use one of the following. Under certain assumptions various fatality rates estimatetable from the Iraq data fit well into our Clinical Trial Template; while under certain assumptions the incident dates found in the Iraq data fit well into our Arrival Time Template.**)

2. Compare and contrast a Bayesian and a Frequentists test of a hypothesis related to your data.

What is Expected

This project is due by Tuesday March 15th at 6:00 P.M. The recommended length 3-6 pages double spaced. This does NOT include you data set. Please submit your data set to me electrically by blitzing it to me. In your write up, you should explicitly describe your choices and briefly (but carefully!) discuss how the various assumptions you made might have effected your analysis and conclusions. Where compared, please discuss whether the Bayesian or Frequentists analysis appears to be more relevant and why. (Especially if your Bayesian and Frequentists analysis did not have come to the came to the same conclusions.)

Bayesian View Point

The Frequentists View Point

Θ

P−Value(x_0) (MaxProb)

H_0

likelihood(x θ_0)

θ_0

°Pr(Type1)

Max(Prob)

°1−Pr(Type2)

B(x)

Confidence

likelihood(x_0,θ)

Maxlikelihood=$\hat{\theta}$

A(x)

Power

Critical

x_0

Critical

Expermental Results Vector

X

Parameter Vector