

P-VALUES SIMPLIFIED

Preface

This discussion of p-values is viewed in the context of a hypothesis test. While the concepts can be extended to more complex models, this simple test is employed for the sake of clarity and ease of comprehension.

In the realm of hypothesis testing one can never prove that a null hypothesis is true; rather, we conduct a test under the assumption that the null hypothesis is correct and endeavor to see if there is an acceptable level of probability to reject it.

Strictly speaking, if we don't find evidence to reject, we cannot say that

FORMAL DEFINITIONS

The formal definition often proffered defines a p-value as:

The probability of obtaining test results at least as extreme as the result actually observed, under the assumption that the null hypothesis is correct.

Similarly, it is often postulated: