

Bayesians and Frequentists



Bayesians say:

Probability = belief

- probability = how certain we are that a statement is true
- large number of trials → useful **data**, not definition
- can use probability for a specific case
- can use prior and posterior probability.

Bayesians use:

Bayes' Rule

to combine prior information and data

Report **posterior probabilities**.



Frequentists say:

Probability = frequency

- probability = proportion of successes in a large number of trials
- cannot use probability if “large number of trials” is not possible
- cannot use probability for a specific case
- cannot use prior and posterior probability.

Frequentists use:

Likelihood

ad hoc tools:

- *p values*
- *significance tests*
- *confidence intervals*

Information criteria (eg, AIC)

STATS 101