Bayes Theorem simplified *even more*

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Bayes Theorem is the rule for using new information to update your degree of belief in some proposition.

Example: Updating opinion as to whether suspect is guilty when DNA evidence is presented

p=orior probability	estimate, prior to DNA, of the chance suspect is guilty
L=likelihood ratio	numerical strength of the DNA evidence
posterior probability	revised estimate taking the DNA into account

In the beginning, **1980's**
Bayes Theorem was

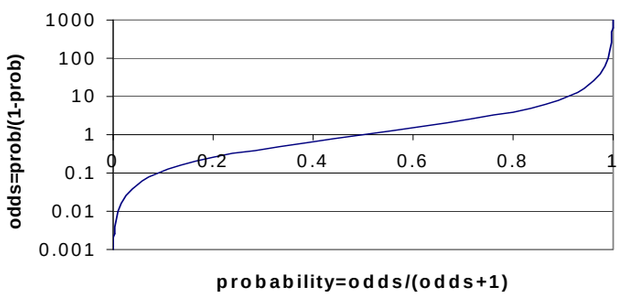
$$\text{posterior probability} = \frac{pL}{pL + 1 - p}$$

A little complicated, but we didn't realize it ...

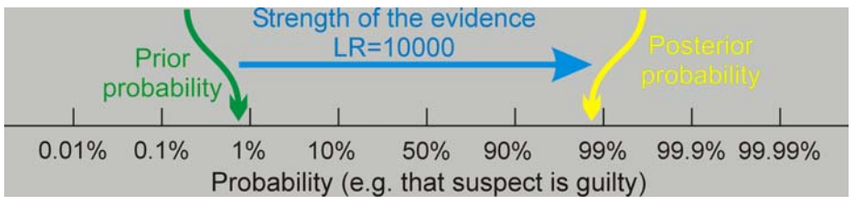
... until later 1990's
we learned the much simpler* version

posterior odds = L·(prior odds)

* providing you're willing to learn to think "odds" instead of "probabilities"



What can possibly be simpler? Only a picture.



Cunningly laid out probability scale.
LR=10 is an arrow 1 tic mark long
LR=100 is 2 tic marks long, etc.

Extend the diagram idea to illustrate various concepts including

- decision threshold
- breaking DNA evidence into components
- effect of possible mutation
- combining different kinds of DNA evidence
- combining DNA and other evidence