

### Bayes

#### Revising Beliefs

*Initial Odds*

*Likelihood Ratio*

*Revised Odds* Likelihood ratio x initial odds

*Hypothesis* Cause

*Evidence* Effect

*Prior Probability* P(Hypothesis)

*Likelihood* P(Evidence|Hypothesis)

*Jointly*  $P(E,H) = P(E|H)P(H)$

*Posterior Probability*  $P(\text{Hypothesis}|\text{Evidence})$   
 $= P(E|H)P(H)/P(E)$   
 $= P(E,H)/P(E)$

*Prior Odds* P(H):P(not H)

*Posterior Odds*  $P(E|H)P(H):P(E|\text{not H})P(\text{not H})$

*Bayesian Networks* graph representation for random variables

### Line Regression

**Least Square** procedure of finding the equation of the line which best fits a given set of paired data

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