

### Bayes

#### Revising Beliefs

*Initial Odds*

*Likelihood Ratio*

*Revised Odds* Likelihood ratio x initial odds

*Hypothesis* Cause

*Evidence* Effect

*Prior Probability*  $P(\text{Hypothesis})$

*Likelihood*  $P(\text{Evidence}|\text{Hypothesis})$

*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*  $P(H):P(\text{not } H)$

*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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