

Decision Analysis

1. definition of expected value
2. drawing and solving decision trees
3. risk aversion and certainty equivalent

Probability

1. terminology: experiments, outcomes, events, sample space
2. operations: OR, AND, NOT
3. mutually exclusive events
4. multiplication rule for mutually exclusive events
 - Case: *People v. Collins*
5. rules of probability
 - inclusion-exclusion rule
 - subset rule
 - complement rule
6. using complement rule to compute probabilities
 - “Birthday Paradox”
 - “coin flip examples (e.g. at least 2 heads out of 10 flips)”
7. fifty-fifty fallacy
8. conditional probability
 - definition
 - $P(A|B) = \frac{P(A \cap B)}{P(B)}$
9. Bayes’ Formula
 - disease testing, true/false positives/negatives
 - applications to determination of guilt
10. the Monty Hall Problem