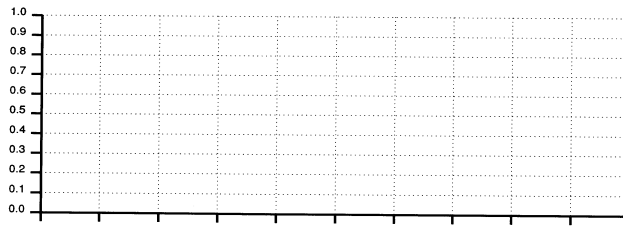


Example

- **A Simple Game:**
 - I Am Ready to Give Away _____ On A Toss Of A Coin
 - If Heads, I Give Away; If Tails, I Keep Money
 - Probability of Heads = 50%
Expected Value =
 - How Much Would You, Individually, Pay Me For The Opportunity To Play This Game?

Interpretation of Example (1)

- Averages Clearly Not The Basis For Most People's Choice
- People Decide on the Basis of "Real Value" \equiv Utility
- Utility Typically Is Non-Linear



Interpretation of Example (2)

- Utility Depends on Many Factors
- Utility is Measurable

Notion of Utility

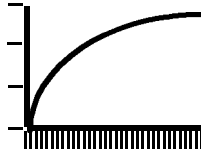
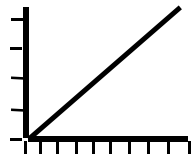
- A Transformation of Outcomes, X , To Define Their "Real Value" = Utility $U(X)$
- People Decide
 - Not On Expected Values
 - Rather, On Expected Values of $U(X)$
- To Understand a Situation
 - Transform All X -----> $U(X)$
 - Do Expected Value Calculations on $U(X)$
- Note:
 - Utilities Are Personal

Some Conventional Definitions (1)

Unfortunately, Terms Can Be Misleading)

- Risk Aversion
Risk Averse if X is Preferred to a Lottery Whose Expected Value is X

- Risk Neutral

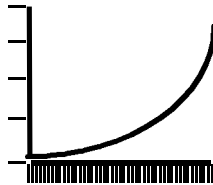


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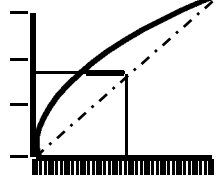
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Some Conventional Definitions (2)

- Risk Positive (Preference, or Prone!)



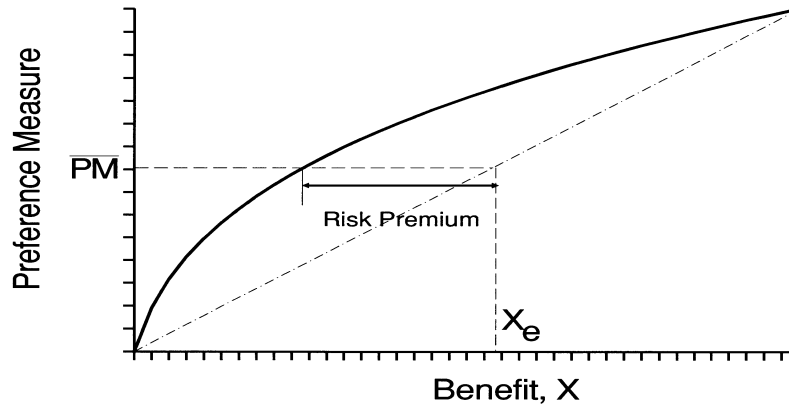
- Risk Premium



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Representation of “Risk Averse” Behavior



• Semantic Caution

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Introduction to Utility Function - U(X)

- **Definition:**
 - $U(X)$ Is A Special $V(X)$,
Defined In An Uncertain Environment
- **It Has A Special Advantage**
 - Units of $U(X)$ Do Measure Relative Preference
 - Can Be Used In Meaningful Calculations

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