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Proyecto CLIMA

Behavioral Decision Theory: How Judgments and Decisions are Made Under Uncertainty



Lesson 1
Overview

Lessons/Themes of the Course

- How to make (good) decisions
 - Normative, descriptive, and prescriptive decision models
 - “good” = “has a good outcome?”
 - Sometimes yes: when all information potentially available
 - But not necessarily
 - “good” = “rational?”
 - How to define ‘rational’?
 - Should “rational” be defined as “consistent” across situations?
 - Should “rational” be defined as “cognitive” or “calculating”?
 - “affective” or “intuitive” processes have a wisdom of their own
 - “good” = “used good process?”
 - Normative models all make simplifying assumptions
 - Different decision modes exist, beyond normative model
 - Use of appropriate modes → compatibility principle
 - Use of multiple modes → “sensitivity analysis”

□ Obstacles to good decision making

- Attention is the ultimate scarce resource
- Uncertainty is painful/scary
- Tradeoffs are painful/aversive
- Cognitive and affective needs often conflict
- Framing questions too narrowly

Attention as a scarce resource

□ Basketball video

- Players in white t-shirts and players in black t-shirts
- Some bounce passes and some chest passes
- Your task:
 - Ignore the “black” players and concentrate on the “white” players
 - Count the number of bounce passes and SEPARATELY the number of chest passes
 - Difficult task, so pay close attention!

Attention is limited

- Source of use of heuristics
 - Availability/Recognition
 - Representativeness
 - Anchoring and insufficient adjustment

- Consequence: Judgments are inconsistent because attention wanders
 - Use formal models and decision support tools

- Consequence: Framing Effects
 - Information presentation or response format focus attention on different dimensions of a decision
 - Constructive preference (problem of “too many preferences”)

Inconsistency of Intuitive Judgments

In Medical Diagnoses:

Radiologist	A	B	C	D	E
A	.70				
B	-.02	.60			
C	.37	-.07	.83		
D	.24	.02	.20	.73	
E	-.11	.47	-.01	.46	.92

Attentional Limitations - cont'd

- Two modes of processing
 - Rational rule-based system → effortful
 - Emotion and association-based system → older, automatic

- Out of sight, out of mind
 - Opportunity costs often ignored
 - Alternative to farming is to invest money in the stock market

- Expectations influence experience and our memory of them
 - In US Midwest in 1990s, farmers who “believed in” climate change (global warming) produce memories of temperatures higher than actual statistics, whereas those farmers who do not “believe in” global warming produce climate temperature memories lower than true values (Weber 1997).
 - In Florida in 2003, farmers who saw a cooling trend in past weather, remembered more freezes

Tradeoffs are painful/aversive

- ❑ Source of shortcuts in multi-attribute utility decisions
 - ❑ Lexicographic decision rules eliminate awareness of tradeoffs
 - Most important dimension considered first, often with a necessary cut-off value
 - Subsequent dimensions only considered for options not eliminated by previous steps
 - ❑ Other noncompensatory decision rules
 - Adaptive Decision Maker (Payne, Bettman, & Johnson, 1993)

Cognitive and affective needs often conflict

- ❑ Tradeoff between being right and feeling good (about yourself or about the decision)
 - ❑ Overconfidence in individuals
 - Hubris in Group Decisions (GroupThink)
 - ❑ Fundamental attribution error
 - Attributing the success of others to situational and chance factors, and their failures to personality and (lack of) skill

Framing too narrow: Egocentric biases

- Psychologically, we still *are* the center of our universes
 - False consensus bias
 - Prediction of others' too closely anchored on our own
 - Belief that our intuitive judgments are better than they are
 - Underestimate inconsistency and overestimate our expertise
- Upside
 - Feeling central is good for our self-image
- Danger
 - Beliefs might be false
 - False beliefs can become reality
 - Self-fulfilling stereotypes

Ways of Arriving at a Decision: Decision Modes

- How a decision is made can influence the alternative that is chosen
- Recent research has documented a variety of decision modes that differ in
 - meta-goals
 - thoroughness/length of time they take
 - cognitive and affective processes used
 - type of information considered

Cost-benefit-based decision making

- ❑ Decision mode most commonly studied by psychologists, economists, and philosophers

- ❑ Characteristics of cost-benefit-calculation process
 - people explicitly weight and combine the likelihood and desirability of outcomes in various compensatory and noncompensatory ways

 - takes time and cognitive resources

 - goal is to choose the best course of action for well-structured problems
 - ❑ E.g., maximize the expected (or multi-attribute) utility of one's choice and minimizing its costs (Payne, Bettman, & Johnson, 1993).

Rule-based decision making

- ❑ decision maker recognizes choice situation as a member of a category for which the best action has already been stored (Simon, 1990)
- ❑ once situation is classified, “if–then” rule is activated which dictates the behavior or choice
- ❑ thus decision is retrieved rather than computed

- ❑ Examples of rule-based decision making:
 - ***Nondeliberative decisions*** for routinized decisions
 - ❑ the “decision” to stop at a red traffic light

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- **Case-based decisions** of experts (with rich episodic memory in their domain of expertise)
 - presenting problem evokes similar situations in the past, the actions taken, and their consequences (Chase & Simon, 1973)
 - **Principle-based decisions**
 - people learn that – for certain situations – cost-benefit-based or affect-based decisions result in “suboptimal” outcomes, i.e., in outcomes they will ultimately regret but will initially choose, due to insufficient self control in the face of temptations (Prelec & Herrnstein, 1991)

Characteristics of rule-based decision process

- Recognition and categorization processes are primary cognitive activity
- Action triggered relatively automatically by relevant rule
- Fast and easy on cognitive resources
- Goal is speedy appropriate action

Role-based decision making

- Another important special case of rule-based decision making, for situations where cost-benefit-based decisions would lead to socially-suboptimal outcomes
 - parents do not conduct cost-benefit analyses when deciding on whether to provide for their children
 - doctors are bound by their Hippocratic oath to assist in a roadside accident, regardless of any personal inconvenience
 - in general terms, social roles are associated with certain rules and expectations of role-appropriate behavior
 - situations that prime a particular social identity will also prime those behavioral norms (March, 1994)
 - Goal: Making an appropriate decision, conform to social norms; affirm social identity, strengthen self image

Affect-based decision making

- people base their decision on their holistic affective reactions to different choice alternatives
 - (Damasio, 1993; Loewenstein, Weber, Hsee, & Welch, 2001)

- affective reactions often conditioned responses (approach or avoidance) that occur almost instantaneous
 - strong enough to overrule rational calculation of costs and benefits
 - e.g., stage fright or other phobic reactions

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- Characteristics of affect-based decision process
 - Automatic affected reactions
 - Fight or flight reactions, impulsive behavior
 - Fast and easy on cognitive resources
 - **Goals:** speedy appropriate action; assertion of autonomy

 - Affect is a strong motivator of action

Good Decision Making

- A skill like many others
 - It *can* be learned
 - It must be practiced, especially initially
 - Much of it involves unlearning bad habits or overriding semi-automatic behavior
 - Practice makes perfect and reduces the effort good decision making might initially take