Preface

My Study Notes from the April 2013 Coursera offering on "A Beginner's Guide to Irrationality"

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1 Summary

Pre-Course

Introduction to Irrationality

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Emotions are a basic part of human nature. They can work for us, or against us (duality). They can also overtake cognition. The key to better decision-making is to understand how and why emotions influence us and design interventions to maximize the benefits of emotional decisions.

1. Brain has 2 sides: Limbic (emotional), Cognitive (logical).All animals have Limbic regions. Humans differ in cognition.
2. Emotions are transient and more short-lived than we expect e.g., the "Tenure" study on happiness/misery.
3. Emotions can overtake cognition. e.g., "cold" and "hot" conditions trigger different "risk" responses. More likely to engage in immoral behavior when aroused. More likely to donate to water-based charity causes after working out (when you are thirsty)
4. **Intra-Empathy**: Empathy is about feeling camaraderie for others. Intra-empathy is about feeling camaraderia with your own future self.
5. Intra-Empathy Mismatch: We find it harder to predict/reconcile our future decisions under a different emotional state, with current thinking.
6. The Trolley Problem: Cognitive vs. Emotional disconnect when asked to save 4 lifes vs. 1 life by pulling a lever to re-route a runaway trolley. Cognitive (cold state) response favors 4 lives, but Emotional (hot state, where you know the face of the 1 person) overturns logic.
7. **Identifiable Victim Effect**: A single, specific victim inspires action but general information about masses does not (the statistical vs. identifiable life). Helping distant strangers is economically irrational and requires empathy (emotion) not statistics (logic). Adding computational terms dampens the emotional response (moves problem out of emotional zone into cognitive zone for decision-making)
8. Designing Interventions: Important to represent the problem in a manner that will (a) get people to take action (short-term goals) and (b) get people to "care" (long-term benefits)
9. **Emotional Decision-Making**: Experiment with asking people to select jam/posters based on (a) emotion and (b) cognitive information about the item – showed people tended to consume (eat/pin-up) more items they bought based on emotion.
10. Product Marketing: It is important to have the *decision environment* (context in which the consumer makes a decision e.g., store) match the *consumption environment* (context in which consumer uses the product e.g., home) – if consumption is emotionally-driven (e.g., requires enjoyment of the senses) then decision-making should be emotionally-driven too.
11. **Risk Assessment**: Our perception of risk is higher when (a) the event is salient in memory (e.g., recent news/entertainment coverage) and (b) we have an emotional response to it. This in turn may cause us to overestimate the risk when making related decisions.

Post-Course

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2 Terminology

Quick reference for relevant terminology or concepts. A good secondary resource is the excellent set of flash cards created by a peer participant on this course. Another set can be found [here] (http://quizlet.com/16883213/behavioral-economics-flash-cards/)

- Note: some terms/explanations below were obtained from the referenced lists for completeness, particularly when they did not have explicit context/references in lectures
- Some explanations below were also obtained directly from Wikipedia because of its concise and clear articulation of that concept. Where useful, I have added context to link them to lectures/readings.
- Where possible, each term has a parenthesized label linking it to the appropriate lecture/week *****
- *Action control theory*.
- *Affect*. (Emotion) Refers to the experience of feeling or emotion, the intuitive sense that something is good or bad. It indicates an instinctive reaction to stimuli that occurs befroe cognitive processes engage to deliver more complex emotional feedback. As such, affect is a key contributor to human's decision-making processes.
- *Anchoring*. (Irrationality) Also called "focalism". It is a cognitive bias that occurs during decision-making, where humans place more importance on the first piece of information provided (the "anchor"), often using this to influence or bias subsequent judgements.
  - Experiments show that this anchor data can be completely unrelated to the subject at hand; rather, it just provides subconscious focus.
  - Ex: students were asked to use the last 2 digits of their SSN as their bidding price for a product; subsequently, revised bids showed tendency to reflect that 'anchor' bias despite the lack of correlation between an SSN and the retail price of that product.
- *Affective Forecasting*. (Emotion) Unlike animals, people try to "predict" their future states and level of hedonic impacts in each, and try to take actions to bring about desirable states (or avoid undesirable ones). See Hedonic Adaptation, Region Beta Paradox.
- *Asymmetric Dominance*.
- *Choice Architecture*.
- *Cognitive Bias*.
- *Cognitive Dissonance*.
- *Coherent Arbitrariness*.
- *ContraFreeloading*.
- *Counteractive Control*.
- *Counterfactual Thinking*. (Self-Control) is a term of psychology that describes the tendency people have to imagine alternatives to reality (i.e., contrary to facts).

Humans are predisposed to think about how things could have turned out differently if only…, and also to imagine what if?. Counterfactuals are conditional propositions, containing an antecedent and a consequence (e.g., If Matt had run, he would have caught the bus.) They can involve both positive and negative scenarios, triggering emotions like relief, guilt, satisfaction, regret etc., which can be motivators (or demotivators) in context. See Reward Substitution and Regret Lottery.

- *Decoy Effect*.
- *Deterrence Hypothesis*.
- *Discounting*. (Self-Control) Given 2 similar rewards, humans prefer the one that arrives sooner and "discount" the value of the one that arrives later, where discount increases with the length of the delay. See Hyperbolic Discounting.
- *Dread Risk*. Low-probabilty, high-consequence events such as 9/11 where many people's lives are lost in a single moment rather than in a distributed manner over time
- *Dual Process Theory*. (Emotion) People view reality in two different ways: System 1 (experiential, intuitive) and System 2 (rational, analytical) where affective bias is a key characteristic of System 1 perceptions.
- *Divestiture Aversion*. See Endowment Effect.
- *Ego Depletion*. (Self Control) When we continually exert self-control, our ability to resist temptation weakens
- *Endowment Effect*. (Self-Control) Also called Divestiture Aversion. It is the hypothesis that a person's willingness to accept (WTA) compensation for a good is greater than their willingness to pay (WTP) for it once their property right to it has been established. People will pay more to *retain* something they own than to *obtain* something owned by someone else—even when there is no cause for attachment, or even if the item was only obtained minutes ago. Also see Loss Aversion. Link
- *Expected Utility*. Also called "anticipated utility".
- *Fudge Factor*.
- *Happiness*. (Self-Control) We pick a reality and compare our lives to it. If that reality is better than our actual lives, we are miserable. If that reality is worse, we feel good.
- *Hedonic Treadmill or Hedonic Adaptation*. (Emotion) Refers to the tendency of humans to return quickly to a stable state of emotion after potentially significant or life-changing positive or negative events. See Region Beta Paradox. Link
- *Herding*.
- *Hyperbolic Discounting*. (Self-Control) A form of time-inconsistent reward discounting where the discount rate falls more rapidly for short-term (present) evaluations and more slowly for long-term (distant future). This leads to situations where given 2 rewards separated by a fixed time duration, humans make different decisions if the reward selection is for the present, and when the reward selection is set in a distant future. Note: Exponential discounting assumes a constant discount (time-consistent) rate - experiments have shown this is not the case for humans/animals, leading to the inclusion of this effect in irrationality in decision-making. Also see Discounting and Present Focus Bias. Link
- *Heuristic*.
- *Inattentional Blindness*. Inattentional blindness is the failure to notice an unexpected stimulus that is in one's field of vision when other attention-demanding tasks are being performed. It often happens when humans are overloaded with stimuli and is due to the fact that the human is then unaware of the unattended stimuli. (The Invisible Gorilla experiment) Link
- *Identifiable Victim Effect*. (Emotion) A single, specific victim inspires action but general information about masses does not (the statistical vs. identifiable life). Refers to the tendency of individuals to offer greater aid when a specific, identifiable person ("victim") is observed under hardship, as compared to a large, vaguely defined group with the same need. (Even small groups moved the focus from identifiable life to statistical life, causing reduced emotive response) The effect is also observed when subjects administer punishment rather than reward. Participants in a study were more likely to mete out punishment, even at their own expense, when they were punishing specific, identifiable individuals ("perpetrators"). Link
- *IKEA Effect*. The Ikea effect is a cognitive bias where labor enhances affection for its results Also see Not-Invented-Here Bias. The nature of the "Ikea effect" is the result of over admiration of a particular item one puts together on their own. It is seen as an actual psychological situation which is linked to consumer placing an overload of value towards an object they built even though it is not worth as much as they believe.Link
- *Intertemporal Discounting*. (Emotion)
- *Intra-Empathy Mismatch*. (Emotion) We find it harder to predict/reconcile our future decisions (under a different emotional state) with our current thinking.
- *Loss Aversion*. Refers to people's tendency to strongly prefer avoiding losses to acquiring gains. Some studies suggest that losses are twice as powerful, psychologically, as gains. This in turn may explain why people may be willing to pay more to retain things they already own than to obtain a new item – see Endowment Effect. Link
- *Macbeth Effect*. (Dishonesty)
- *Marginal Cost*.
- *Not Invented Here Bias*.
- *Pain of Paying*. (Psychology of Money) Reflects the agony we feel when we part with our money and is amplified by saliency (can we 'see' the money going away) and timing (how closely is payment coupled to the consumption experience). Key components of PoP:
  - Moral Tax of consumption: the guilt we feel when we spend hard-earned money
  - Format of payment: related to saliency, representation of payment matters - cash hurts more than credit card or casino chips
  - Timing of payment: post-pay vs. pre-pay (cruise), per-bite vs. per-meal (restaurant) - former is financially good but hurts more
  - Opportunity cost
  - Hassle component
- *Present Focus Bias*. (Self-Control) Tendency to give more weight to our current environment or state. Also see Hyperbolic Discounting.

- *Prospect Theory*.
- *Region Beta Paradox*. (Emotion) Phenomenon (described by Daniel Gilbert) where active response mechanisms kick in when some critical threshold is passed, causing a time-distance paradox where we may take more time to reach a closer target than we would a distant one. Example 1: When travelling, we may choose to "walk" to a close destination but drive to a distant one; ergo we may get to the further destination earlier. Example 2: (related to affective forecasting) more intense joy/distress emotions are attenuated faster than tepid ones; ergo we may get over spousal infidelity faster than over spousal disorderliness.
- *Regret*. (Self-Control) The comparison between where we are in life and where we could have been. See Happiness.
- *Regret Lottery*. (Self-Control). Regret builds on loss aversion and counterfactual thinking by creating a strong sense of 'what if' or 'if only' that can in turn provide motivation. Regret lottery uses regret as a reward substitution measure, entering people in a lottery and notifying them of a win but only allowing them to *claim* the reward if they had performed a specific task (e.g., medication adherence) that required self-control.
- *Reward Substitution*. (Self-Control) Phenomenon where we use an *alternative* reward that has immediate impact (and is therefore more motivating) to influence decisions. This is particularly true in cases where we face a decision that has short-term pain and long-term gain, where we discount the long-term default reward (because of the time component) and focus only on short-term discomforts.
- *Self-Herding*.
- *Status Quo Bias*.
- *Visceral Factors*. (Emotion) Refers to rapidly-changing high-intensity states (encompassing negative emotions, drive states and feeling states) that can override a user's stated preference or cognitively-planned action in the short-term, and should therefore be considered a factor in computing utility in decision-making processes. Humans tend to under-estimate the impact of VF on future actions. See Intra-Empathy Mismatch.

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3 Lecture 1: Introduction to Irrationality

3.1 Visual and Decision Illusions (19:16)

3.2 Defaults (19:57)

3.3 Do We Know Our Preferences? (4:04)

3.4 Choice Sets and Relativity (15:11)

3.5 The Long-lasting Effects of Decisions (22:09)

3.6 Learning from Our Mistakes (9:58)

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4 Lecture 2: The Psychology Of Money

4.1 Opportunity Cost (12:20)

- A measure of what we give up by choosing one thing over another
- In money terms, a reflection of what we can't buy in the future because of what we bought today.
- Also referred to as the *shadow value* of money
- Kids are the ultimate opportunity cost

4.1.0.1 Car Dealership Experiment

- People buying cars asked what they were giving up in exchange
- No one had thought about purchase in these terms before
- When pressed, used substitution within category (gave up Honda for Toyota)

People don't understand opportunity cost because it's hard to visualize and compare across time or category. When we try to do so, we use short-cuts to justify decisions.

4.1.0.2 Do we really understand how money works?

- Envision a world without money. Result would be bartering systems.
- Money allows more efficient operation of markets by providing common substrate
- The way money "works" in our current environment also makes it more difficult

4.1.0.3 Envelope of Money Experiment

- Imagine you have a fixed amount of money to spend each week. How would you plan to spend it?
- Tradeoff decisions occur more as the week winds down. The "1 week" is a horizon within which decisions are taken which allows people to plan.
- What happens when we extend the concept to a "year"? Now the horizon is more tenuous and it's harder to understand tradeoffs.

Tradeoffs are obscured in our complicated economy where the "horizon" for a decision is invisible or shifting.

4.1.0.4 Sony vs. Pioneer Purchase Experiment

- Given a choice between $700 Sony and $1000 Pioneer stereo, more people pick Pioneer.
- Now, given a choice between a $1000 Sony with "$300 of free CDs" (effectively $700), more people pick Sony.
- Why? Because in case 1, the tradeoff was cost vs. quality and cost (money) is too abstract for people to evaluate or get excited about. In case 2, the tradeoff shifted to content vs. quality (for same price) – now people could evaluate across two tangible benefits and find something to get excited about.

Money is too "abstract" for people to visualize and use in opportunity costs. When money is mapped onto real/tangible things, people find it easier to understand the opportunity cost of picking one over the other.

4.1.0.5 Coffee Experiment

- Price for capuccino is $3.00 – can I get you to do something for me for a capuccino, that you wouldn't do for me if I gave you $3.00 directly.
- So representation of a capuccino is worth more than $3 - the first has more emotional appeal.

We place a higher value on specific items than on the monetary value of those items.

4.2 Relativity (7:24)

Thinking about money in relative vs. absolute terms is one trick people play to justify opportunity costs.

4.2.0.1 Pen Experiment

- You purchase a pen. Cashier tells you the same pen is available at competitor 3 blocks down for $8 less.
- Would you say yes or no? Most say "yes"
- Now you purchase a camera. Cashier tells you the same pen is available at competitor 3 blocks down for $8 less.
- Would you say yes or no? Most say "no"

The effective effort vs. savings is the same ($8) but to our perceptions they are different. Compared to the absolute cost of the item, the "relative" savings seem less worthwhile in the camera.

Similarly:

- (Leather Cost) using $2000 with leather for car seats vs. leather for office chairs. Chair is used more, but you are less likely to agree to upgrade there.
- (Renovation) spend lots of money on more expensive tile (snap decision) but think hard about spending extra on more expensive tomatoes at grocery on the same day.

4.2.0.2 Happiness Factor

- Would you rather earn $90K and be lowest earner in one company or earl $85K and be the highest earner in another?
- Most people choose the first when asked what they prefer, but choose the second when asked where they would be *happier* (satisfaction influenced by comparison to coworkers)
- We are not willing to pay a premium for happiness

Diminishing returns – the psychological effects of monetary amounts curve flattens after an initial exponential rise. This is why $8 at the lower end of scale maps to a much higher psychological intensity than an $8 differential at higher end of purchase cost.

4.3 The Pain of Paying (14:32)

Scenario: You go to dinner. Options to pay with credit or cash – which feels worse? Answer: Cash

The agony of parting with our money has to do with saliency (is this money going away) and the timing of it (is the money going *at the same time* as the consumption of paid-for goods?)

Scenario: I charge you 50 cents per bite, and charge you only for the bites you eat. * Is this a financially-efficient meal? Yes - we know exactly what we owe at all times * Is this a fun meal? No (example of PhD students taking large bites but being miserable)

Scenario: You go for a cruise. You can pay in advance, or pay the moment you get off the boat. * Option 2 is more economically-efficient but how do you feel through the cruise? * You try to overindulge to justify the cost, you think about it every day..

The pain of paying adds a *moral tax* and a saliency (how much attention we pay to it) that can impact the pleasure of purchase. Example: * Salience when paying for gasoline. You can see the money ticking as you fill gas, giving you incredibly large pain in paying. Similarly, for cabs. * Electricity also charged per use but now you pay once at the end of the month, by credit card. Less pain of paying.

Are there times we want to *feel* the pain of paying?? If so, to increase the pain of paying * use cash * receive notification whenever money is spent * increase salience

Prepayment can focus our attention on the enjoyment of the experience * Example: When going on a vacation, an "all-expenses paid" trip where you don't have to think about paying per-drink, per-ride etc. has more enjoyment than paying as you go * Example (my own): Amusement parks where you pay once for all rides, rather than per-ride. It is not economically efficient (you don't get to really go on all the rides) but your enjoyment is greater.

What is an ideal gift?? What are the characteristics? * It removes the "pain of paying" from the recipient * Imagine you see a hat and love it, but it's too expensive so you don't buy it. Now your spouse bought the hat for you from your joint checking account. Do you ask him to return it? (Majority of surveyed people chose to keep the hat)

The Pain of Paying involves - opportunity cost - hassle component - moral tax (guilt associated with payment) - method of payment (credit card vs cash) - timing of payment (before, during, after)

We experience less pain of paying when the *form* of paymen is distanced from the pure representation of money Example: * Cash in money at casino for "chips" * Now your pain of payment in using/losing chips is less because you have subconsciously altered it to be something "allocated" for the enjoyment of the casino

Pre-paid money in a certain category is easy to spend (e.g., Gift Cards)

Example: AOL moved from tiered rate ($19.95 for 20 hrs + $2.95/hr after) to a flat rate ($19.95 for unlimited use). How many people would start using more data/modems? * Distribution curve: was originally bell shaped (people vs. hours-online) with very few people using more than 25 hours per month *initially* * Speculation: They speculated that those who used more than 20 hrs anyway were basically having the marginal cost (i.e., extra per-hour) amortized and would be the big winners. And they speculated that those who used 19 hours could be keeping a buffer, and potentially increase their usage – but those who used much less (e.g., 10 hrs) would not be affected since they had a lot of unused capacity indicative of unuse. * Based on this they increased capacity by a tiny amount. * What really happened? Demand quadrupled. * Why? Because AOL had an onscreen 'clock' that showed you the pain of paying all the time. Now no one felt that pain anymore – so everyone started consuming without thinking.

4.4 Mental Accounting (8:09)

4.5 Fairness and Reciprocity (8:09)

4.6 Loss Aversion and The Endowment Effect (12:17)

4.7 Market and Social Norms (20:42)

4.8 The Price of Free (9:50)

4.9 Micro-Payments (11:42)

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5 Lecture 3: Dishonesty

5.1 The Simple Model of Rational Crime (14:47)

5.2 Shrinking and Expanding the Fudge Factor (24:31)

5.3 Conflicts of Interest (15:04)

5.4 Cheating over time and Across Cultures (10:42)

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6 Lecture 4: Labor and Motivation

6.1 Extrinsic versus Intrinsic Motivation (16:58)

6.2 Meaning (4:13)

6.3 Acknowledgement (3:31)

6.4 IKEA Effect (11:49)

6.5 Not-Invented-Here Bias (9:36)

6.6 Cognitive Dissonance (5:00)

6.7 Monetary Stress and Performance (22:01)

6.8 Social Stress and Performance (8:11)

6.9 Bonuses, Labor and Motivation (11:48)

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7 Lecture 5: Self Control

What is the role of self-control in overcoming challenges in our lives and in our decision-making?

7.1 Difficulty with Self-Control (16:46)

- Present Focus Bias: Tendency to give more weight to our current environment or state.
  - Challenge: How to motivate behaviors for long-term benefit if they have short-term drawbacks?

    - Example: Interferon regimen for treating Hepatitis C. Would you make yourself sick on purpose (short-term side effects of treatments) to prevent cirrhosis (long-term benefits?)
- Hyperbolic Discounting: Related to present bias. In general, discounting refers to the process whereing people, given two similar rewards, show a preference for the one that arrives sooner. They "discount" the value of the later reward by a factor that increases with th length of delay.
    - In *exponential* discounting, we have a time-consistent model where the discount rate is constant over time. Effectively, the human will make a similar choice over any two options that are separated by the same time period.
    - In *hyperbolic* discounting, we have a time-inconsistent model where the discount rate is very high for short delays (near-term) and falls more slowly for long delays (far-term). Effectively, humans behave in a dynamically inconsistent manner making a *different* choice between two options that have a constant time difference based on the choice being anchored to present or to a distant future (will take 1/2 box chocolates today rather than way a week for a full box; but will wait the extra week and take the full box if told the choices are anchored at a year out from present)
- Why do we pick half-box of chocolates today (over full box in a week) – but reverse our decision if the options are half-box in a year and full-box in a year-and-a-week? Because we believe we will have better control/behavior in the distant future, but not right now.
    - Relative Importance of Things in Life: Some things (liver health) are more important than others (side effects of treatment) but we discount this importance because of the time component (short-term pain vs. long-term gain).
- Example: Global Warming. Why Climate Change maxmizes human apathy?
    - It is far in the future
    - It affects others first
    - We do not see its progression
    - We don't see a particular person suffering
    - Individual efforts are a drop in the bucket
- Reward Substitution: A trick we play to overcome such discounting effects by using an *alternate* reward that is immediate and therefore more motivating.
    - Well known concept in game design – e.g., leaderboard recognition as motivation
    - Can we use reward substitution to encourage green behaviors? money, convenience, recognition.
    - The Toyota Prius Effect: Provides social rewards (ego boost)
- Reward substituion can get us to act like we care about the world (or long-term effects) when we really care about our self-image (short-term impact)

7.2 Reward Substitution (12:46)

- Coumadin Study:
    - Significantly reduces the risk of stroke, has relatively few side effects BUT still has low compliance. Why? Something wrong in the 'incentive' system for taking coumadin
    - Can we measure compliance? Yes – Internet pill-box records context of pill consumption
    - Can we reward/punish using measurements? – Pay/Charge them? Guilt via kids? Competition? …
    - Options: Take $3/day to take medication? "Supersize" incentive using loss aversion (where loss of money has higher magnitude than gaining same amount) – take away money for not taking? What about $100 for a period of time? What about social rewards – medication tied to specific kid being fed in Africa?
    - Lottery: The Ideal Lottery: one big low-probability reward + many small rewards that are more attainable
    - Regret: if the contrast between two outcomes is salient, the pain of loss is higher – e.g., Olympic silver medallist vs. bronze medallist. Silver compares to gold winner (how close did I get!!) while bronze compares to all non-winners (how many did NOT get this?) - so bronze winner is happier
- Experiment: Addressed Coumadin compliance with a "Regret Lottery"
    - everyone gets a ticet
    - only those who took medication on time get to claim a prize (if they win)
    - medication adherence went up 98-99% with regret lotteries

Takeaway: Many ways to maximize rewards without explicit costs * lotteries * regret * randomization * counterfactual thinking * reward substitution

7.3 Ulysses Contracts (11:09)

- Self-control (Ulysses) contracts
    - You know you will be tempted
    - You bind your current selt to prevent your future self from misbehaving
- Experiment:
    - Pigeons shown Green Button (immediate, 1-pellet reward) and Purple Button (deferred, 10 pellet reward) ended up choosing Green.
    - Pigeons now shown a third Red Button which turns OFF the Green button (removes temptation to go for immediate reward) – ended up choosing the Red button.
    - Even animals understand the need for self-control
- Two states of being:
    - Naive: unaware of having a self-control problem
    - Sophisticated: aware of lack of self-control, takes proactive steps to resist/avoid temptation

7.4 The Importance of Self-Control: The Individual and the Environment (13:48)

- The Marshmallow Challenge: Kids given a marshmallow, promised a second one if they waited 20 minutes to eat the first one.
    - Kids who were able to resist the marshmallow did better in college
    - Ability to resist temptation also reflected in better physical health, less criminal activity, more financial stability
- Is self-control a skill (learned) or an innate ability (born)?
    - When we distract ourselves from temptation, we are more likely to resist it
    - Ego Depletion: When we continually exert self-control, our ability to resist temptation weakens
- How much does self-control depend on innate ability, and how much on "Tricks" we develop to enhance those abilities?
- How much does self-control suffer as we are tempted throughout the day?

- What role do rules play in regulating our behavior?

- Human Mortality attributed to "bad decisions" jumped 5X from 1900 to 2000. Why? Because technological advances create more and more opportunities for us to succumb to temptation.

- Experiment: The Denver Drug Program attempted to help heroin addicts recover. Employed Ulysses contracts

    - required addicts to write a self-incriminating letter to the person they did NOT want to find out about their habits
    - sent the letters if the agreement was violated
    - imposed a three-week waiting period - and after that, most subjects complied with the contract
- Take-away:
    - Ulysses contracts: must be binding to be effective. It is difficult to study Ulysses contracts because researchers are *required* to let participants leave the study at any time.
    - Self-control: We must find a balance between amount of freedom we crave and the controls we need to shield us from temptation

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8 Lecture 6: Emotion

Two sides to decision-making: rational and emotions. When emotions take over, they can eliminate the rational side.

8.1 Two Systems (20:25)

1. Two sides to the brain: *Limbic* (internal, emotional) and *Cognitive*(external, thoughtful)
2. Useful to think about emotional system as 'rapid response' to inputs e.g., fright/flight/fight where we don't want to think, we just want to act/react and execute an action in response to external stimuli.
3. All animals have Limbic systems but humans have a more evolved Cognitive system. However, emotions are often stronger (more deep-rooted) than cognition.
4. Quale (singular) or Qualia (plural) = feeling of emotion. Refers to internal and subjective component of sense perceptions that arise from the stimulation of senses by phenomena.
5. *Why do we need emotions?* – Not about the moment (now) but rather about planning (future). By giving users a deep-rooted feeling, it provides long-term context for remembering and reacting to the similar situations.
6. *How do emotions work?* – They are more primitive, faster and executed based on environment. They can be moderated by cognitive processes but they are in fact **transitory** and more short-lived than we expect.
7. *Affective forecasting* Dan Gilbert (Harvard) performed experiments to illustrate that happiness fades faster than we expect. "Emotional adaptation" implies that we return to some base or normal emotional state even after big changes to our emotional context. Experiment: Professors asked how getting/being-denied tenure would affect them. Most predicted a long-term happiness (on tenure) or misery (on denial) – but in reality, most returned rather quickly to their previous state. Other examples: the joys of moving, the sorrows of dating and breaking up.

EXPERIMENT: To prove that emotions can overtake cognition.

1. (Objective) Conducted survey with subjects to look at the effect of sexual arousal (considered a basic emotion) on a user's cognitive attitudes to (a) sexual preferences (simple or quirky), (b) willingness to take risk (e.g., practice safe sex), and (c) willingness to act immorally (e.g., ethical in approaching others for sex) .
2. (Process) Subjects asked to answer questions in two different states: (a) A *cold* condition where they simply sat and answered them, and (b) a *hot* condition where they were first shown suggestive imagery or otherwise put into a heightened state of arousal.
3. (Result) Students who acted safely and in risk-averse ways in the cold condition, showed a propensity to change their responses and have a higher willingness to act in unsafe or immoral ways when aroused.
4. (Example) *Purity Pledge* – studies showed thay people who sign purity pledges are more likely to catch STDs. Why? Because they make the decision in a cognitive state (cold) and don't prepare for (or anticipate) situations where they could break their pledge (e.g., when in an emotional state).
5. (Relevance) It is hard for people in "cold" states to empathize with behaviors taken in "hot" states – to do so, we need to understand how emotion can *change* our behaviors or our decision-making. Note that this is not an excuse for criminal behavior, but perhaps more of a context for understanding such impulses and designing more effective interventions.

8.2 Intra-empathy Mismatch (3:48)

1. *The Intra-Empathy Gap*. We find it harder to make predictions about *our* future actions under an emotional state and typically mis-predict our behavior. Typically, empathy refers to our feelings/responses to others' behavior. However, intra-empathy refers to our feelings about our own.
2. Example: People often think they want to watch high-class "quality" movies (e.g., classics). But when they go to watch a movie, they are not acting on "principle", but on emotion – and they end up watching lighter or more entertaining "popcorn" movies.
3. Example: Lowenstein asked people at gym about their willingness to support charities (e.g., water). Found that in cold state (just starting workout) people were not as empathetic but as they worked out (and were thirstier) they were more likely to donate to water-related causes. Note that food-related causes did not cause empathy in this context, only water-related ones.
4. Proposal: We might have more success in raising money for hunger or food-related causes if we solicit hungry people – i.e., delay food service at charity dinners.

8.3 The Identifiable Victim Effect (16:38)

The Trolley Problem

1. A train approaches an intersection but is heading towards the track with 4 people on it. You have the power to pull a lever to divert the train to the other track (which only has 1 person on it). Do you pull the lever? Most people say yes. Saving 4 people at the cost of 1 life is the better option.
2. But now, suppose you had a person standing next to you on a bridge above the track and could push him onto the path of the train to stop it from hitting the 4 people – again the trade-off is 4 lives vs. 1 life. Would you do it? Most people say no. They don't have the guts to do this. Would it make a difference if you pushed him while

facing him (eye-contact) or not? People have differing opinions.

3. Underscores discrepancy between cognitive and emotional thinking. Cognitive = logic (4 lives > 1 life). Emotion = feeling (1 life > 4 lives because we care about the 1 person).

Mismatched Money and Need

1. Looks at "funding-generated vs. number-affected" for various disasters from 9/11, Hurricane Katrina, Asian Tsunami, Tuberculosis, AIDS and Malaria. There is a negative correlation - Katrina affected 2M but achieved 3200M in funding, while Malaria affects 300M but gets only 200M in funding. Why?

2. Things that could contribute to this mismatch: proximity to the US, racial/economic strata etc. Or they are closer to you because you can envision someone you know being a victim.

3. The Identifiable Victim effect: We care more about suffering when it is represented by one individual (face of the problem) but care to a lesser degree when the problem is wide-spread. Example Quotes: (Stalin) One man's death is a tragedy. A million deaths is a statistic. (Mother Theresa) If I look at the masses, I will never act, if I look at the individual I will.

4. (Example) You are dressed for an interview and you see a toddler drowning – would you jump in to save her? Of course! Instead, ask yourself: would you put aside a little money to save a toddler from starving? Maybe. But what if this was one in a million toddlers and you didn't see or hear her cries? Probably not.

EXPERIMENT: Statistical vs. Identifiable Life

1. Research shows that when soliciting donations for world hunger, people were willing to donate *twice as much* to "Rokia" whos is representative of the problem (identifiable), than they would if just shown the masses (statistics).

2. What happens when you combine both (i.e., show a face, but ask for donations to support that person AND additional "x" people?). Result: Donations go down ($1.14 for statistical, $2.38 for identifiable, $1.43 for both)

3. Experiment: Showed users a photo with 8 kids and asked for donations for them. Users in condition 1 told that once their donation was given, a specific child would be chosen. Users in condition 2 told that a child had been randomly selected for them already before asking for donation. Result: people more likely to help in condition 2.

Helping distant strangers is economically irrational – it requires empathy (emotion) not computation (logic). Adding statistical data dampens our emotional response. It's almost as if introducting data moves us away from emotional decisions to cognitive thinking. Merely thinking in computational terms dampens our emotional response.

Identifiable victim effect is why people respond less to genocide or issues like mad cow disease, where problems were described in the "total" rather than with an "individual" face. In the latter case, it took a cute calf photo to trigger public action to revise the intervention policy. It is important to know how to "Represent" a large problems in ways that will get people to act. And how can we represent the problem in a "persuasive" manner that won't just get people to act (short-term) but actually get people to care (long-term).

8.4 Emotional Decision Making (10:16)

1. Baby Jessica Story: Toddler fell into a well and was rescued. Received more coverage than Rwanda and Darfur combined. People donated to her *after* she was rescued – why didn't genocide create this level of long-term interest? Again, the identifiable victim effect: imagery of one trumps statistics of many.

2. The Spam Story: Spammers try to create an emotional link with user by using a "story" e.g., by connecting with end user via some trusted source (e.g., bulletin boards) and create a relationship. But why do so many spam letters have poor grammar? Suggests it is deliberate – spammers want to keep "gullible" people in their system and filter out those less likely to be productive targets for their schemes. By using poor grammar, they can be more assured that respondents are 'gullible' and less critical. Evidence of this is just beginning to emerge. Spamming is a good way to learn about human behavior since it obtains data from large populations.

EXPERIMENT:

1. Subjects asked "What do you like? Pick what you like" for two kinds of products – Jam and Posters. Afterwards, the subjects were revisited to find out how they liked their choice: did they consume the jam? did they hang up the poster?

2. Two cases were explored: In case A, subjects were just shown the products and asked to go with their emotions. In case B, subjects were given statistics and additional information (cognitive input) about products. Result: Subjects who picked items based on emotional input alone tended to "consume" that item (e.g., ate the jam or hung the poster) more/better than those who selected it based on cognitive input.

3. Why? Because a lack of cognitive input can increase the enjoyment of products that are intrinsically consumed using emotions (e.g., sense of taste, sight). Thus the ideal is for the *decision environment* to match the *consumption environment* in order to maximize consumption pleasure.

4. Example 2: (Chris Hsee) When purchasing speakers – comparing them 'side-by-side' at a store, tiny differences in quality seem more important than the appearance. But now at home, there is no "relative sound comparison" and the appearance begins to matter more. So, again, think about the consumption environment (home) when designing the decision environment (store)

8.5 Risk Assessment (6:28)

1. Risk Assessment is Emotion-driven: How do your emotions affect your beliefs regarding the risk of death? Paul Slovic study: Tragedies that were most recently covered (in news) are more salient in our minds and we *over-estimate* the risks there.

2. Example: Are you more likely to die from falling airplane parts or shark attacks? More pick shark-attacks because they are more salient in popular culture (movies) rather than reality.

3. Example: People ask Dan if he is afraid to travel home (to Israel). Death toll from car crashes is 400 times greater than that caused by terrorism (2005). But because terror attacks are intentional and beyond your control, the emotional response to them is sharper, and causes more fear.

4. Takeway: Our perception of risk is higher when (a) the event is salient in memory (e.g., recent news/entertainment coverage) and (b) we have an emotional response to it.

5. All emotions are not equal. Some emotions (arousal, fear, hunger) are stronger than others. The power of emotions to influence us depends on how *primary* they are – as opposed to, say, how social they are (e.g., embarassment). The more primary/visceral, the more likely they are to influence our actions.

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9 Readings

Page counts are provided after each link **in bold** and are indicative of the page-counts in my copies of those papers. For online articles (e.g., New York Times) the page-count is for a "printable PDF" of the article. My notes are likely to be more comprehensive for shorter articles (< 10 pages) which I would have had more time to read in full, with longer articles meriting only a brief summary based on a quick scan-pass of the document.

PRE-COURSE: Recommended

1. *Maps of Bounded Rationality: Psychology for Behavioral Economics* Link (**28 pages**)
2. *Behavioral Economics: Reunifying Psychology and Economics* Link (**3 pages**)
3. *Deep Rationality: The Evolutionary Economics of Decision Making* Link (**23 pages**)
4. *The Storrs Lectures: Behavioral Economics and Paternalism* Link (**60 pages**)
5. *Adam Smith, Behavioral Economist* Link (**17 pages**)
6. *Following the Money, But also the Mind*. Link (**5 pages**)
7. *To Really Learn, Quit Studying and Take a Test* Link (**4 pages**)

IRRATIONALITY: Required

1. *How actions create—not just reveal—preferences* Link (**14 pages**)
2. *Tom Sawyer and the construction of value* Link (**14 pages**)
3. *The great rationality debate* Link (**7 pages**)
4. *Do defaults save lives?* Link (**2 pages**)
5. *The meaning of default options for potential organ donors*. Link (**5 pages**)

IRRATIONALITY: Recommended

1. *Psychology and Economics* Link (**96 pages**)
2. *Comparison, Grouping, and Preference*. Link (**5 pages**)
3. *Failure to Detect Mismatches Between Intention and Outcome in a Simple Decision Task*. Link (**4 pages**)
4. *Construction of Preferences by Constraint Satisfaction*. Link (**7 pages**)
5. *Choice Construction versus Preference Construction: the Instability of Preferences Learned in Context*. Link (**47 pages**)
6. *Coherent Arbitrariness: Duration-sensitive Pricing of Hedonic Stimuli Around an Arbitrary Anchor*. Link (**39 pages**)
7. *Round Numbers as Goals: Evidence from Baseball, SAT takers, and the Lab*. Link (**10 pages**)
8. *The Format in which Uncertainty Information is Presented Affects Decision Biases*. Link (**8 pages**)
9. *When Questions Change Behavior: the Role of Ease of Representation*. Link (**8 pages**)
10. *In Pursuit of Taste, en Masse*. Link (**5 pages**)

PSYCHOLOGY OF MONEY: Required

1. *Buying Behavior* Link (**2 pages**)
2. *Opportunity Cost Neglect* Link (**9 pages**)
3. *How Credit Card Payments Increase Unhealthy Food Purchases: Visceral Regulation of Vices*. Link (**15 pages**)
4. *The Psychological Consequences of Money*. Link (**4 pages**)

PSYCHOLOGY OF MONEY: Recommended

1. *Opportunity Cost Consideration*. Link (**54 pages**)
2. *The Hidden-Zero Effect: Representing a Single Choice as an Extended Sequence Reduces Impulsive Choice*. Link (**2 pages**)
3. *The Pursuit of Happiness: Time, Money, and Social Connection*. Link (**7 pages**)

4. *Money and Happiness: Rank of Income, not Income, Affects Life Satisfaction*. Link (**6 pages**)
5. *Money Giveth, Money Taketh Away: The Dual Effect of Wealth on Happiness*. Link (**5 pages**)
6. *For Whom is Parting with Possessions more Painful? Cultural Differences in the Endowment Effect*. Link (**9 pages**)
7. *Doing Better but Feeling Worse: Looking for the ''Best'' Job Undermines Satisfaction*. Link (**8 pages**)
8. *The Medial Prefrontal Cortex Exhibits Money Illusion*. Link (**4 pages**)
9. *Why Worry? It's Good for You*. Link (**3 pages**)
10. *My Faith-based Retirement*. Link (**3 pages**)
11. *The Fairness Trap*. Link (**3 pages**)

DISHONESTY: Required

1. *The Dishonesty of Honest People: A Theory of Self-concept Maintenance*. Link (**48 pages**)
2. *Contagion and Differentiation in Unethical Behavior: The Effect of One Bad Apple on the Barrel*. Link (**6 pages**)
3. *Prefrontal White Matter in Pathological Liars*. Link (**6 pages**)
4. *Washing away your sins: Threatened morality and physical cleansing*. Link (**2 pages**)
5. *The Evolution and Psychology of Self-deception*. Link(**56 pages**)
6. *Justified Ethicality: Observing Desired Counterfactuals Modifies Ethical Perceptions and Behavior*. Link (**38 pages**)

DISHONESTY: Recommended

1. *When Psychological Closeness Creates Distance from one's Moral Compass*. Link (**31 pages**)
2. *The Value of Believing in Free Will: Encouraging a Belief in Determinism Increases Cheating*. Link (**7 pages**)
3. *Effects of Subliminal Priming of Self and God on Self-attribution of Authorship for Events*. Link (**9 pages**)
4. *Keeping One's Distance: The Influence of Spatial Distance Cues on Affect and Evaluation*. Link (**8 pages**)
5. *Bad Drives Psychological Reactions, but Good Propels Behavior Responses to Honesty and Deception*. Link(**12 pages**)
6. *Do Green Products Make us Better People?* Link (**6 pages**)
7. *The Counterfeit Self: The Deceptive Costs of Faking It*. Link (**10 pages**)
8. *Temporal View of the Costs and Benefits of Self-deception*. Link (**3 pages**)
9. *The Moral Diet*. Link (**5 pages**)
10. *Bankers Gone Wild*. Link (**5 pages**)
11. *Why we Lie, Go to Prison, and Eat Cake: 10 Questions with Dan Ariely*. Link (**3 pages**)

LABOR AND MOTIVATION: Required

1. *Feeling Good About Giving: The Benefits (and Costs) of Self-interested Charitable Behavior* Link (**23 pages**)
2. *The IKEA Effect: When Labor Leads To Love* Link (**34 pages**)
3. *Large Stakes and Big Mistakes* Link (**28 pages**)
4. *Effort for Payment: A Tale of Two Markets* Link (**8 pages**)
5. *A Fine is a Price* Link (**19 pages**)
6. *Man's Search for Meaning: The Case of Legos* Link (**7 pages**)

LABOR AND MOTIVATION: Recommended

1. *Medium of Exchange Matters: What's Fair for Goods is Unfair for Money* Link (**5 pages**)
2. *It's not what you get but when you get it: The Effect of Gift Sequence on Deposit Balances and Customer Sentiment in a Commercial Bank* Link (**37 pages**)
3. *Doing Good or Doing Well? Image Motivation and Monetary Incentives in Behaving Prosocially* Link (**12 pages**)
4. *Why Pay for Performance may be Incompatible with Quality Improvement* Link (**2 pages**)
5. *When High-powered People Fail: Working Memory and 'Choking Under Pressure' in Math* Link (**5 pages**)

6. *Can Shortcuts be a Force for Thrift?* Link (**3 pages**)
7. *What's the Value of a Big Bonus?* Link (**2 pages**)

SELF CONTROL: Required

1. *Procrastination, Deadlines, and Performance: Self-control by Precommitment*. Link (**6 pages**)
2. *A Gradient of Childhood Self-control Predicts Health, Wealth, and Public Safety*. Link (**6 pages**)
3. *Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving*. Link (**25 pages**)
4. *Separate Neural Systems Value Immediate and Delayed Monetary Rewards*. Link (**5 pages**)
5. *Counteractive Self-control in Overcoming Temptation*. Link (**14 pages**)
6. *Personal Decisions are the Leading Cause of Death*. Link (**13 pages**)

SELF CONTROL: Recommended

1. *Goal Priming in Dieters: Recent Insights and Applications*. Link (**7 pages**)
2. *Counteractive Self-Control*. Link (**6 pages**)
3. *Affective Forecasting and Self-control: When Anticipating Pride Wins over Anticipating Shame in a Self-regulation Context*. Link (**9 pages**)
4. *I Suppress, therefore I Smoke: Effects of Thought Suppression on Smoking Behavior*. Link (**7 pages**)
5. *Bottomless Bowls: Why Visual Cues of Portion Size may Influence Intake*. Link (**8 pages**)
6. *Extraneous Factors in Judicial Decisions*. Link (**4 pages**)
7. *The Push and Pull of Temptation: The Bidirectional Influence of Temptation on Self-control*. Link (**6 pages**)
8. *You wear me out: The vicarious depletion of self-control*. Link (**8 pages**)
9. *Why do People Gamble and Keep Gambling Despite Heavy Losses?* Link (**5 pages**)
10. *Predicting Cognitive Control from Preschool to Late Adolescence and Young Adulthood*. Link (**8 pages**)
11. *Prefrontal–striatal Pathway Underlies Cognitive Regulation of Craving*. Link (**6 pages**)
12. *Select All: Can you have too many choices?* Link (**6 pages**)
13. *The Sugary Secret of Self Control*. Link (**4 pages**)
14. *Options Play a Role in Healthier Choices*. Link (**2 pages**)

EMOTION: Required

1. *Psychic Numbing and Mass Atrocity*. Link (**18 pages**)

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Inaction of Bystanders: Why do people/governments fail to react to genocide and mass-scale human rights violations?

Lessons From Psychology:
  * Affect (=sense that something is good or bad) conveys meaning to information, and motivates action.
  * Dual-Process Theory = we perceive dual reality: System 1 (experiential) and System 2 (rational) where the latter (analysis) is importa
  * Affect drives moral intuition, which influences moral judgements on situations like genocide. So is affect deficiency to blame for apa

Affect, Analysis and Value of Human Lives:
  * Boils down to quantifying the value of human life. Brains think of numbers in a logarithm-like scale.
  * *Weber's Law*: For stimulus (affect) to be noticeable, a fixed percentage must be added. Thus, we notice small changes in small contex
  * *Psychophysical Function*: characterizes the diminished sensitivity to a wide range of perceptual or cognitive entities (stimuli) as t
  * *Psychophysical Numbing*: reflects our inability to appreciate losses of life as they become larger in magnitude.
  * *Prospect Theory:* refers to decision-making under uncertainity. Defines a value function that relates a subjective value to actual ga

  * Intervention vs. Apathy: Studies show that *proportion* of lives saved causes more weight than the *absolute* number of lives saved, w

Numbers and Numbness
  * Apathy not explained completely by psychophysical numbing.  What else is at play?
  * Identifiable Victim effect. Face/identity elicits more compassion than statistics.
  * Can personalized media coverage of genocide victims overcome apathy? Perhaps. Study showed that identifiable life garnered more compas
  * **Compassion Fatigue** EXPERIMENT: Subjects primed to either remember emotions or perform calculations; the former donated more than t

 TBD
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2. *Dread Risk, September 11, and Fatal Traffic Accidents*. Link (**4 pages**)

Dread Risks are low-probability, high-consequence events (e.g., 9/11) where many lives are lost in a single event or moment rather than distributed ove time. People often go to great lengths to avoid dread risks. The authors posit that such avoidance measures may actually contribute to a greater loss of life.

- Dread Hypothesis: 9/11 was a dread risk. Authors hypothesise that (a) Americans reacted by reducing air travel to avoid dread risk, (b) some resorted to travelling by road instead and (c) as a result road fatalities increased post 9/11.

- Validation of Hypothesis: Direct evidence of (a) comes from airline revenues which dropped into the red for the 3 months post 9/11. Indirect evidence for (b) comes from monthly miles driven in those 3 months, which were at least 2% higher than before and showed largest increase on rural highways (indicative of long-distance travel). Indirect evidence for (c) comes from road fatality patterns which were stable before 9/11 but in the next 3 months showed an increased cost of 350 lives lost.

Takeway: Dread risks incur primary costs with high visibility. Fear of dread risks incurs a secondary cost via avoidance measures that is often invisible in conversations about that event. While dread risks are unanticipated and harder to predict/prevent, the secondary psychologically-motivated tolls are preventable and can be easily/cheaply avoided by educating the public.

3. *The Peculiar Longevity of Things Not So Bad*. Link (**7 pages**)

Research in affective forecasting shows that people like to predict future states of affect and plan actions that bring about desirable/hedonic states and avoid undesirable/dangerous states). But data shows that people often err in these predictions. The authors use the concept of "Region Beta paradox" to explain this 'affect mismatch' between a user's predicted and actual future emotional states.

- The Region Beta Paradox: a phenomenon where relationshop between distance and time is non-monotonic, resulting in a paradox where longer distances/targets are attained faster than shorter ones. The reason for this is the triggering of some "active response" mechanism when a critical threshold is crossed. Example 1: People walk to nearby destinations but drive to further ones; ergo, user takes more time to get to a closer location where the active response (take car) is triggered by some threshold (x blocks). Example 2: People see doctors and take more recovery efforts for serious injuries than for minor scrapes; ergo they suffer from sprains/aches longer than they do from fractures

- Relevance to Affect Forecasting: There exist psychological processes that 'attenuate' intense emotions (distress or pleasure) and dampen them faster. However these have costs and are therefore triggered only when a reasonably-high threshold for that affect is crossed. Thus, people tend to return to a stable emotional state faster from intense emotional events than from tepid ones - e.g., spouses rationalize and handle infidelity faster than they do a spouse's tendency to be messy. However people don't 'know' about this effect and consequently assume longer durations for affective impact leading to erroneous predictions for future action.

Experiment: Demonstrating User Error in Affective Forecasting

- (Study 1: Predicting Duration from Intensity) To test that people do in fact predict lomger durations for more intense emotions (distress) than for milder ones. Study conducted using a survey of 57 male and 41 female students who were asked how they would feel when one of 9 situations (date rejection, recognition failure, borrowed without asking, stood up for study date, friend joined a racist group, refused restroom entry, saw locker break-in, friend betrayal with ex, car dented) happened to them; these responses reflected intensity of emotion. They were then asked how they thought they would feel 1 week later; these responses reflected *predicted* duration of that emotion. Correlation results showed that all participants clearly expected their feeling at the time of the transgression to be a powerful predictor of their feelings one week later.

- (Study 2: Partners and Non-Partners) To test that people recover faster from intense emotion than from mild ones. Study part A conducted with 21 female and 5 male students. Each was told of insult to them from (a) partner or known person and (b) stranger. Results clearly showed that initial distress (intensity) was higher for insults from partners than from strangers. Next, study part B conducted with 12 male and 17 female students broken into 'experiencer' and 'forecaster' groups. Similar to A, participants were told of the insult from parnter and from non-partners but now (a) experiencers were left alone for 5 minutes and then asked to rate the intensity of insults (= delayed affect), and (b) forecasters were surveyed immediately (= no 5 minute delay) but asked to estimate or forecast the intensity they would feel in 5 minutes. Results clearly showed that participants were more affected immediately by insults from the partner but *experiencers* showed that they actually liked the partner more than the non-partner after the delay though *forecasters* predicted the reverse. This proves the attenuation effect for intense emotions.

- (Study 3: Victims and Bystanders) Speculated that for the *same* event (intensity), the victim would have more intense reactions than a bystander; thus victims would trigger attenuation effects and end up liking the insulter more than a bystander (who has no such attenuation). Study used 16 male and 42 female students who were sorted into victim/bystander groups and given forecaster/experiencer roles. As hypothesised, *forecasters* predicted they would dislike the insulting partner more when they were in victim roles than as bystanders, but *experiencers* did the opposite, ending up disliking the insulting partner less when they were victims than as bystanders.

Takeaway: When people make decisions based on affect forecasting without taking into effect the psychological processes that different outcomes will trigger, then they may be acting at the expense of their own future fulfillment or satisfaction.

4. *Emotions in Economic Theory and Economic Behavior*. Link (**7 pages**)

Jeremy Bentham (1789) proposed utility as the net sum of positive over negative emotions. Neoclassical economists removed emotion from the equation, developing the concept of *ordinal utility* and the theory of revealed preference. In other words, utility was now an index of preferences not happiness. Today both economists and psychologists concur on the role of emotions in consumer behavior, but differ on where they apply. Economists look at *anticipated emotions* (e.g., post-purchase regret/disappointment) that occur in the future while psychologists focus on *immediate emotions (i.e., decision-making at time of purchase). This paper focuses on the latter, exploring *visceral factors* that can propel behaviors in a direction that is different from that made by cognitive analysis (i.e., weighing long-terms costs and benefits of various options).

- Definition of Visceral Factors: Refer to wide range of *negative emotions* (anger, fear), *drive states* *hunger, thirst, desire) and *feeling states* (pain) that grab people's attention. Visceral factors and conventional "preferences" both drive trade-offs in decision-making. But preferences are about consistency and short-term stability; visceral factors however change rapidly, reflecting changes in internal body state and external stimuli. VF are often perceived as destructive forces, but are in fact more essential to daily functioning than cognitive processes because they improve quality of life (e.g., lack of hunger affects health, lack of pain increases accidental self-injury). VF are also under-appreciated, with people often attributing behaviors to deliberate/cognitive decision-making. VF are also perceived as erratic/unpredictable or unstable influences because they change rapidly; in reality VF is highly-dynamic but has highly-systematic influences on behavior while the so-called "stability" of cognitive decision-making may actually lead to more unpredictable results (because humans can 'plan' different actions with deliberation instead of allowing instinctive default behaviors to dominate)

- Effects of Visceral Factors: They motivate behaviors via "carrot and stick" impulses where carrots enhance the pleasure of activities that mitigate VF (e.g., any food tastes delicious when you are hungry) and sticks deepen the intensity of the VF (anything non-food is of little or no relevance when you are hungry). Thus VF has strong impact on the "utility" of a given goods/activity based on how well those can mitigate the effect of the VF. But the downsides to apply VF in utility computations are: (a) VF can cause people to behave contrary to self-interest (e.g., road-rage), and (b) people tend to under-estimate the impact of VF on current and future behaviors (discounting) thanks to wishful thinking (self-delusion) and poor memory of past VF-induced behaviors particularly when they are not currently in that VF state (intra-empathy gap).
    - At low intensity, VF creates intrapersonal conflicts (between what one is compelled to do emotionally vs. what one feels is best to do cognitively). At high intensity, VF seizes command over human behavior, causing subjects to feel "out of control" over decision-making.
    - Intra-empathy gaps (where humans under-estimate or mis-predict behaviors under a future 'hot' state when in a current 'cold' state) further distory utility computations in context. A *projection bias* proposes a compromise taking into effect (a) actual utility function at future time T, (b) utility function that would prevail in absence of VF at time T and (c) utility function at current time N based on currently-existing VF

- Consequences for Economic Behavior: VF is transient but the influenced behaviors can have long-lasting effects or consequences. Many important decisions occur in VF state but three key categories are of importance to economists:
  - VF like anger/embarrassment colors *bargaining power* of individuals, making them act contrary to self-interest and (due to empathy gap) impacting a priori negotiations (e.g., pre-nup)
  - VF impacts *intertermporal choice* giving the appearance of extreme discounting of the future (i.e., short-sighted decision-making) and manifest themselves in areas like self-control (e.g., road rage, diet)
  - VF influence on *decision-making under risk/uncertainity* where people's cognitive evaluation of risk/uncertainity often differs from emotional reaction (e.g., fear) over that event. VF or 'immediate' emotions can help explain anomalies in risk-taking phenomena (e.g., gender-specific behaviors).

Takeaway: VF represents rapidly-changing affect intensity that can cause human behavior (action) to diverge from a cognitively-made decision, and in a manner that is potentially against the user's self-interest.

- Awareness of VF influence on "utility" (during decision-making) causes people to take proactive actions to manipulate their own VF states to maximize utility (e.g., fast to heighten pleasure of meal, or eat regularly to prevent binge-ing when on diet).
- But the intra-empathy gap causes humans to under-estimate the influence of *future* VF factors (based on the absence of those factors in current state) and take actions that make them vulnerable to decision-making in that future context (e.g., recovering alcoholic thinks it's okay to go for a celebration dinner at a bar with friends).
- Economists thus need to take VF into account in their calculations on utility, adjusting for both current VF state and for future VF state of the user, when predicting or influencing their actions.

EMOTION: Recommended

1. *Moral Masochism: On the Connection Between Guilt and Self-Punishment*. Link (**16 pages**)
2. *The Enduring Impact of Transient Emotions on Decision Making*. *Organizational Behavior and Human Decision Processes* Link (**34 pages**)
3. *Looking Forward to Looking Backward: The Misprediction of Regret*. Link (**7 pages**)
4. *Misery is not Miserly: Sad and Self-focused Individuals Spend More*. Link (**7 pages**)
5. *Benign Violations: Making Immoral Behavior Funny*. Link (**10 pages**)
6. *Dirty Liberals! Reminders of Physical Cleanliness Influence Moral and Political Attitudes*. Link (**7 pages**)
7. *Emotion Expression in Human Punishment Behavior*. Link (**32 pages**)
8. *The Vulcanization of the Human Brain: A Neural Perspective on Interactions Between Cognition and Emotion*. Link (**25 pages**)
9. *Emotional Accounting: How Feelings about Money Influence Consumer Choice*. Link (**15 pages**)
10. *Embodying Emotion*. Link (**5 pages**)
11. *The Biology of Bubble and Crash*. Link (**4 pages**)

POST-COURSE: Recommended

1. *Psychology, Behavioral Economics, and Public Policy*. Link (**15 pages**)
2. *How To Turn Consumers Green*. Link (**3 pages**)
3. *Could Behavioral Economics Help Improve Diet Quality for Nutrition Assistance Program Participants?* Link (**34 pages**)
4. *Regulation for Conservatives: Behavioral Economics and the Case for 'Asymmetric Paternalism.'* Link (**44 pages**)
5. *Recommendations Implicit in Policy Defaults*. Link (**7 pages**)
6. *Behavioral Dimensions of Food Security*. Link (**6 pages**)
7. *Economics Behaving Badly*. Link (**3 pages**)
8. *Helping People Help Themselves*. Link (**7 pages**)

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10 Citations (References)

PRE-COURSE: Required Reading

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11 Books

Notes and observations from Dan Ariely's published books/articles. These are not mandated for the course but provide relevant insights and references for the same material.

11.1 Predictably Irrational: The Hidden Forces that Shape Our Decisions

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11.2 The Upside of Irrationality: The Unexpected Benefits of Defying Logic at Work and at Home

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11.3 The (Honest) Truth About Dishonesty: How we Lie to Everyone – Especially Ourselves

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12 People

12.1 Guest Lectures

To be summarized.

IRRATIONALITY

1. Gavan FitzSimmons (15:11)
2. Eli Finkel (18:31)

THE PSYCHOLOGY OF MONEY

1. Mike Norton (10:03)

2. Kathleen Vohs (23:27)

DISHONESTY

1. Peter Ubel (12:09)
2. Nina Mazar (14:19)

LABOR AND MOTIVATION

1. Lalin Anik (17:27)

SELF CONTROL

1. Leslie John (8:13)
2. Hedy Kober (16:06)
3. “Making Sense” on PBS (14:24)

EMOTION

1. David Pizarro (18:03)
2. Peter McGraw (16:22)

12.2 Notable Economists

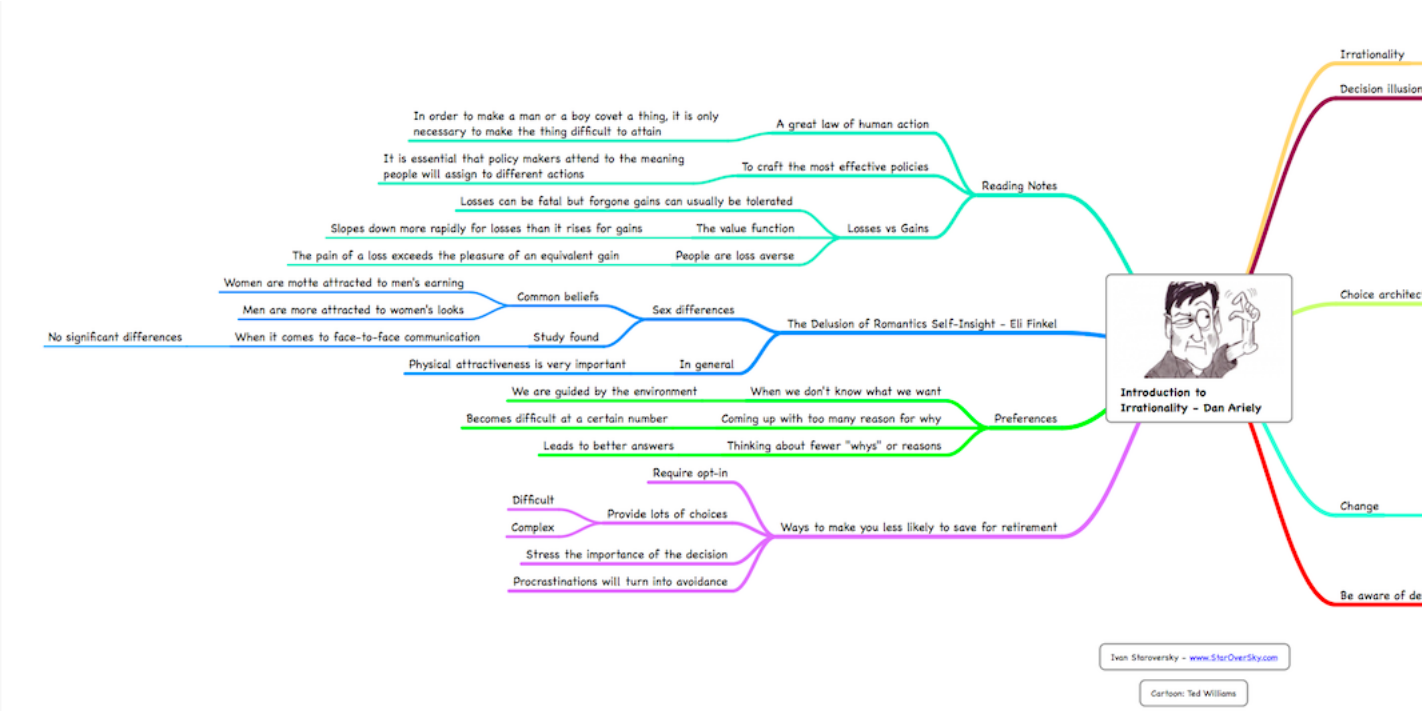
List from Wikipedia – key contributions to be summarized.

- Dan Ariely
- Colin Camerer
- Ernst Fehr
- Daniel Kahneman
- Laszlo Garai
- David Laibson
- George Loewenstein
- Sendhil Mullainathan
- Drazen Prelec
- Matthew Rabin
- Herbert A. Simon
- Paul Slovic
- Vernon L. Smith
- Larry Summers
- Richard Thaler
- Amos Tversky # MindMaps

Ivan Staroversky created a terrific set of mindmaps here and made them available for students reviewing the course. The links for all mindmaps are provided below for quick reference.

12.3 Week 1: Irrationality

12.3.0.1 1. Introduction to Irrationality



Introduction to Irrationality

12.3.0.2 2. Choice Sets and Relativity

[Choice Sets and Relativity] (http://staroversky.com/assets/img/blog/2013/irrational-behavior/choice-sets-and-relativity-irrational-behavior-dan-ariely.png)

12.3.0.3 3.

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12.3.0.4 4.

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