

Senselessness and Sensibility: A Study on Economic Rationality

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Abstract

The idea of the rational man, who coldly calculates the cost and benefits of their actions to achieve maximum utility, has colored our understanding of human society in myriad ways. Although the ideas first came from economics, we find that our public policy, our legal institutions our communication strategies and indeed all social science have been shaped by this idea. But how valid is this model when applied to real humans, rather than theoretical actors? How rational is it for us to put faith in the rationality of man?

This paper combines new research from economics, political science, communication science, psychology and even neuroscience to show some of the ways that economic rationality fails to capture the real influences on human decision making. By documenting ways that our brain takes shortcuts and factors irrelevant information into our decisions, this paper hopes to show how incomplete the model of the rational man is, and offer suggestions as to how to better shape our society to align with a more accurate view of ourselves.

Introducing *homo economicus*

*What a piece of work is a man, how noble in reason, how
infinite in faculties, in form and moving how express and
admirable, in action how like an angel, in apprehension how like
a god! The beauty of the world, the paragon of animals¹*

This bit of poetry, courtesy of the Bard, illustrates a widely held appreciation for the capabilities of humanity. After billions of years of development, human beings are blessed with unparalleled abilities to understand, wonder and invent. But the odes and poetry written about the wonders of man's reason pale in comparison to the praise found in a standard economic text. Central to the theoretical structure of classical economic thought is the idea of the *homo economicus*, or the perfectly rational man. This rational human can calmly weigh the costs and benefits of a set of actions, and chooses the path that will maximize their self-interested benefits and minimize their costs. Through this process, *homo economicus* strives to obtain the not just money, but the highest amount of "utility", the broadly defined pleasure and benefit that can be taken from life. This idea of utility maximizing behavior determining human decisions is known as "rational choice theory"

The basic assumption underlying this idea of *homo economicus* is that all human beings have a well-defined set of preferences; this is their conception of what constitutes the optimal life and what benefits are the most enticing. Every time *homo economicus* has to make a choice, he chooses the option that helps him achieve these preferences best, what gives him the most utility. This process is repeated for each and every decision that the rational man makes, all in an effort to best achieve his preferences. These preferences do not necessarily have to lead to long-term

¹ Shakespeare, William. *Hamlet*. "Shakespeare: The Complete Dramatic and Poetic Works of William Shakespeare" Red Letter Edition. Intr. Frederick D. Losey. Philadelphia: John C. Winston Company, 1952. 1000-1040., II.ii.293–297

success and survival. Under standard theory, there is no material difference between someone purchasing drugs or purchasing a meal with their money: the first person simply derives more utility from being high than from being fed.² Inherent in this assumption is the idea that the rational man knows the benefits of different actions, and has the information needed to correctly weigh them.

The important thing to note here is that even in standard economic theory, it is not assumed that humans are solely motivated by money. Other factors, such as relaxation and personal joy are also recognized as important factors in human decision making. The end goal of economic rationalism is broadly defined, robust and recognizes differences in preferences. Therefore, the theory can be used outside of the limited parameters of financial interactions by accounting for many more ideas of utility than cold hard cash.

But although standard theory has no problem accepting that different people can have wildly disparate views on what is the end goal of their actions, or what constitutes utility, it still narrowly defines itself. Rational choice theory assumes that no matter what our end goal is, the way we weigh options is constant in all of us. From the most radical liberal, to the most fastidious conservative, standard economic thought says that we all use the same methods and thought processes to reach our desires. What's more those processes are perfectly designed to optimize our choices.³

New research is finding that these assumptions are faulty at almost every point. Experiments from economics, psychology, communications, political science and even

² Schneider, Stefan. "Homo economicus – or more like Homer Simpson?." *International Topics: Current Issues*. Deutsche Bank Research, 29 06 2010. Web. 11 Apr 2011. <https://www.dws-investments.com/EN/docs/research/homo_economicus.pdf>.

³ Ibid

neuroscience are documenting in greater detail than ever just how flawed human reasoning is. On many occasions, in many different ways, irrelevant factors prove to be instrumental in decision making. Details totally unrelated to costs and benefits, however you define them, constantly influence our choices. As the basic assumptions that construct the theoretical models behind our economy and political structure suffer blow after blow, we find that wide held beliefs about our institutions are called into question.

The argument of these studies is not that economic rationalism is wrong, per se. The academic and real life support of financial incentives influencing purchasing decisions and motivating worker performance is well documented.⁴ In addition, evidence linking the political preferences of a voter to the political leaning of the candidate is likewise recognized in many experimental and real life situations.⁵ But even if rational analysis is a major factor in human decision making, does that mean that *homo economicus* is a good model of behavior in all circumstances? Or is it only a partial explanation of our thought processes, leaving out many factors?

The empirical evidence suggests the latter. Our choices are often a result of forces that don't relate to economic rationality in the slightest, aka irrationality. What's more, rather than irrationality being an aberration in our behaviors, certain flaws in our thought processes seem to crop up again and again. Researchers such as Dan Ariely, Professor of Behavioral Economics at

⁴ Awasthi, Vidya and Jamie Pratt "The Effects of Monetary Incentives on Effort and Decision Performance: The Role of Cognitive Characteristics" *The Accounting Review* Vol. 65, No. 4 (Oct., 1990), pp. 797-811

⁵ Feddersen, Timothy and Wolfgang Pesendorfer "Voting Behavior and Information Aggregation in Elections With Private Information" *Econometrica* Vol. 65, No. 5 (Sep., 1997), pp. 1029-1058

Duke University, argue “these irrational behaviors of ours are neither random nor senseless. They are systematic, and since we repeat them again and again, predictable.”⁶

David Ropeik, a Harvard Professor specializing in risk perception studies, argues along the same bent. Consistently weighing factors in a cold, highly logical way is beyond what we are capable of. He believes that it is a false dichotomy to separate the head from the heart when examining human thought processes. Rather than describing two systems that influence decision making, one system being a cold, hard weighing of the facts and one based on instinct and emotion, our decision making is controlled by one singular thought process with elements that cannot be separated from each other..

“When it comes to perceiving risk, people are neither rational nor emotional. We are *Affective*. Affectives are people who make risk assessments with both their head *and* their heart, cortex *and* gut, based on the facts *and* on their feeling and instincts and values and cultural views and personal experiences and life circumstances”⁷

Achieving perfect rationalism and conducting cold, hard weighing of costs and benefits on a regular basis seems to be beyond our abilities. But if our minds don’t work the way that economic thought describes, how does it function? What should we think about how we think?

The purpose of this paper is to provide a review of some of the flaws in human rationality that so greatly influence our lives. The research described within provides some perspective as to the problems that exist when models of human behavior differ greatly from actual human behavior and how irrational it may be to assume that people are rational. Finally, it will offer certain steps we can take so that our irrationality can not only be accepted, but compensated for in our daily lives.

⁶ Ariely, Dan. *Predictably Irrational*. 2nd ed.,. New York: Harper Perennial, 2009. xx. Print.

⁷ Ropeik, David. *How Risky is it Really?: Why Our Fears Don't Always Match the Facts*. 1st ed.,. New York: McGraw Hill, 2010. Pp. xv

Why these studies matter

The research summarized in this paper is relevant to three separate groups. The first group consists of policy makers and managers who design the systems we live with today. By understanding that there are limits to how much the incentive structures championed by standard market economics can truly influence human behavior, we can develop systems that can take into account the multiple factors that affect motivation. By modifying the incentives to account for the affective tendencies of people, we can develop more realistic economies, electoral structures and legal institutions.

Secondly, these studies have great salience for professional communicators in any field. Study after study has found that slight changes in the way information is presented can lead to vastly different interpretations. Without changing the quantitative value of the message (the costs and benefits inherent in it), proper understanding of the irrational influences that affect us can let communication professionals improve their message to better inform and motivate their audiences.

Thirdly, these insights into our own minds benefit us all. Any human being can find relevance from this research. As consumers, both of products and messages, we are all subject to these affective tendencies that may cause us to go against our interests. But by being aware that we may fall prey to these whims, we can guard against them. When we realize that there may be a gap in perception between what is best for us and what we *feel* is in our best interests, we can temper ourselves. We can try to separate our fears and speculations from the reality of the situation. We can rationally approach our irrationality and deal with it upfront, rather than holding on to the delusion that our minds function as a bastion of logical behavior. As such, we

may be able to maximize our benefits better by recognizing we're not always the best judge of what maximizing our benefits means.

Putting this research into perspective

For the sake of simplicity, this paper focuses primarily on issues of financial transactions and electoral decisions, because the both of these fields have been largely shaped by the idea of the rational actor. As such, political scientists and economists have developed a long and well documented set of research to draw from. In addition, although all results presented are statistically significant, each study and experiment listed is open to questions of generalizability, as is every study.

But with the vast empirical support from various fields attacking the idea of rationality, the questions raised in this paper must be considered. The ideas presented here extend far beyond the scope of this paper. The research presented here calls into question the processes we use to evaluate information in every aspect of our lives. These affective forces are present whether we're examining the stock market or we're trying to buy groceries. With the innumerable potential applications coming from studying affective tendencies, this research should be considered not only by academics, but by the average layperson.

This is your brain. This is your brain on irrationality

Our mind is a fantastic device. Computer scientists have tried for years to create a device approaching the sheer computational power of the brain. However, to this day they have never come close. A standard measurement for computer processing power is MIPS, standing for "million instructions per second". The brain has the power to handle 100 million MIPS, or 100

million million instructions every second.⁸ This power is far beyond even the most advanced supercomputers in the world.⁹

But that power should not blind us to the failings of the human mind. Outside of cultural, psychological and social forces that may influence decision making processes, there are biological imperatives that lead us inevitably towards irrational impulses. Researchers studying how the brain processes fear have found that when faced with an image that may possibly constitute a threat, the brain's fear response actually begins *before* rational thought even takes place. Whether or not the image that triggered your amygdala was a snake lying at your feet or a vine on the ground, the possibility of danger always activates the same effect. When an image is related from the retinas, it passes through the amygdala of the brain, which activates the flight or fight response in humans. The amygdala gets adrenaline pumping, causes your muscles to tense and generally puts your body on high alert and ready to face the perceived threat.¹⁰

What modern technology is able to show is that the amygdala is activated up to 22 milliseconds before the message is received by the cerebral cortex, where reason is found. Therefore, by the time that rational thought begins, and you have a chance to truly analyze any danger you might be in, your emotions already have a hold on the brain and have thrown you into panic.¹¹

⁸ Moravec, Hans "When Will Computer Hardware Match the Human Brain?" *Journal of Evolution and Technology Vol 1*

⁹ Greenemeier, Larry. "Computers have a lot to learn from the human brain, engineers say." *Scientific American*. March 10, 2009

¹⁰ Pissioti, Anna, Orjan Frans, Asa Michelgard, et al. "Amygdala and Anterior Cingulate Cortex Activation during Affective Startle Modulation: A PET Study of Fear." *European Journal of Neuroscience* 18 No 5 (2003) pp. 1325-1331)

¹¹ Ropeik p. 4-6

This reaction can be a tremendous boon in certain situations. That 22 milliseconds can be the difference between life and death when facing threats such as a poisonous snake, or a charging animal. As such, natural selection played a major role in reshaping our brains for this response. But as we moved away from the wilds and into civilization, we found ourselves dealing with threats that relied less on reaction time and more on heavy thought. In these situations, the brain processes integral to our past survival make us less suited to weigh other more complex situations from a cold, rational perspective.¹² Vague threats such as pollution or hazardous chemical exposure are threats more difficult to conceptualize than what our ancestors faced. But the amygdala will still react the same way, and cloud our rational thought centers with fear, even when it's logical thought that serves as the best protection from these threats.¹³

But even when safety and fear aren't part of our thought processes, the human mind is simply not equipped to weigh the costs and benefits of every situation it comes across. The human mind is a computational marvel, to be sure. When faced with a new scenario, our brain is able to interpret the mounds of sensory input it receives, filter it through past experiences, lifestyle and cultural norms and give us a value judgment within instants. However, there is a cost to all of this computational power: fuel. Of the 2000 calories that an adult consumes in a day, 400 of them are used to fuel the brain.¹⁴

In order to keep the energy demands of the mind in check, the brain builds in a series of shortcuts allowing it to reach conclusions while keeping energy demands to a minimum. These shortcuts are known as "heuristics". Without these heuristics, the brain's demands on our energy

¹² Ledoux, Joseph *The Emotional Brain*. New York: Simon & Schuster, 1996

¹³ Ropeik, p. 12

¹⁴ Ibid p. 25

stores would become too great and become a hindrance to our long term survival. If the brain used all of its resources to weigh the costs and benefits of every action we took, life would come to a standstill as the energy demands of the brain rose exponentially.¹⁵

So instead of having unfettered access to the capabilities of our brain, we usually operate with the amount of brainpower we need, and no more. Our rationality is “bounded”, in the words of Herbert Simon, and when evaluating courses of action, we use our minds “as best as possible” to attain our goals.¹⁶ Although normally “as best as possible” serves us pretty well, these shortcuts our minds take can lead us astray in many ways.

The research summarized in this paper shows a myriad of different ways in which our behavior can be influenced in many irrational ways. Many of these influences are a result the cognitive heuristic biases that are an integral part of our thought processes. But although these flaws in thinking may be irrational, they are far from pointless. These shortcuts allow us to function and thrive in ways that the perfectly rational mind of *homo economicus* would simply fail us.

So if this irrationality is built into our system from a biological standpoint, how realistic can models based on the rational man be? If we structure systems and incentive packages assuming that people will approach them rationally, we may be sorely disappointed. This potential problem exists in many areas, whether it be our economy, our legal institutions, our electoral system or the field of public relations. Any field dealing with human decision making can be affected by these systematic and predictable irrational influences all of us deal with. So

¹⁵ Ibid p. 25

¹⁶ Simon, Herbert, “Bounded Rationality,” in John Eatwell, Murray Milgate, Peter Newman (eds), *Utility and Probability* (New York: Norton, 1990), pp. 15-18

shouldn't these irrationalities be taken into account? Instead of designing systems to cater to the rational human, shouldn't they be modified to account for the more realistic model of the affective human?

The rational voter in action?

Although the idea of the rational man has much to do with an Adam Smith-like view of the marketplace, the same basic assumptions have been carried over into varied disciplines dealing with human behavior. This has led some academics to state "The theory of rational choice seems to stand in relation to the behavioral sciences as the Newtonian theory of matter in motion stands to the physical sciences".¹⁷ Political science in particular is ripe with discussion about the "rational voter" who has well defined political preferences on what they desire from their government and vote accordingly.¹⁸

From the beginning, the ideas of economic actors and political actors have been intertwined. Conceptually, the idea of the perfectly economically rational voter has been around since the mid-19th century, when famed philosopher and utilitarian John Stewart Mill published "On the Definition of Political Economy; and on the Method of Investigation Proper to It". In this work, he attempted to create a model of human behavior when approaching political issues, which could be used to predict future outcomes and decisions. When describing the goals of his model, Mill stated:

It makes entire abstraction of every other human passion or motive; except those which may be regarded as perpetually antagonizing principles to the desire of wealth, namely,

¹⁷ Herrnstein, R.J. "Rational Choice Theory: Necessary But Not Sufficient." *American Psychologist*. 45.3 (1990): 356-367. Print.

¹⁸ Fisher, Stephen. "Extending the Rational Voter Theory of Tactical Voting." *CREST*. 94. (2001): 1-39. Print.

aversion to labour, and desire of the present enjoyment of costly indulgences. These it takes, to a certain extent, into its calculations, because these do not merely like other desires, occasionally conflict with the pursuit of wealth, but accompany it always as a drag, or impediment, and are therefore inseparably mixed up in the consideration of it.¹⁹

Once again, just like in economic models, it is recognized that utility can encompass much more than just monetary gains and rewards. But even though the theoretical models don't define what utility means to a given individual, it still assumes that each rational human has well defined preferences and given the proper information. The theory remains based on the postulant that a person can accurately ascertain exactly how a course of action will benefit or cost them, according to their preferences. They will then weigh their options (in the case of voting, the candidates) and choose the action that will maximize their benefits and minimize their costs.²⁰

Further theorists, such as Anthony Downs, took this conception of rational voting behavior and refined it. In this model of the rational voter, also known as the Downsian model of political behavior, both voters and candidates can be placed along a continuous spectrum of political views, from most liberal to most conservative.²¹ The theory goes that although obviously each voter would like to elect a candidate at the exact same point on the political spectrum as them, someone who completely agreed with their conceptions of how government should be run, that is unlikely. Instead, they must settle for the candidate that falls closest to their political preferences, which is the most rational action under those circumstances.²²

¹⁹ Stuart Mill, John. *Essays on Some Unsettled Questions of Political Economy*. 2nd ed.,. Kitchner, Ontario: Batoche Books, 2000. 1-117. Print.

²⁰ Rowley, Charles Kershaw, Friedrich Schneider. *The Encyclopedia of Public Choice: Volume 1*. New York: Kluwer Academic Publishers. 2004

²¹ Economic Society World Congress. *Advances in economics and econometrics: theory and applications*. Cambridge: Cambridge University Press, 1997

²² Ibid

In this model, the voter's only consideration is which candidate is most closely aligned with their own political values. However, numerous factors not even remotely related to the political process have been found to create sizable effects in electoral results. For example, a study done at Loyola Marymount University showed a positive correlation between sports victories by a local team in the days leading up to the election, and the likelihood that an incumbent would retain his seat²³. The study examined results of local college football games between 1964 and 2008, for all counties with teams in the Bowl Championship Series. He compared these results to those of American presidential, gubernatorial and senate elections within the same counties.

The numbers showed that if the local team won in the 10 days before the election, the incumbent's share of the vote went up by 0.8 percentage points – a small but statistically significant change, when controlling for other factors. No particular party gained from this phenomenon, those running for reelection were always better off. The biggest causes for variability in the results: how devoted the fan base is and how big an upset the particular game was.

The theory behind this finding states that the positive feelings and general high that comes with a favorite team winning carry over to other aspects of the fan's life. They are generally more supportive of the status-quo and interpret the incumbent's record more favorably. Similar studies have been done showing that President Obama's favorability rating increased as

²³ Healy , Andrew J., Neil Malhotra, and Cecilia Hyunjung Mo. *Irrelevant events affect voters' evaluations of government performance* PNAS 2010 107: 12804-12809.

much as 5% during the 2009 NCAA tournament, depending on how well the respondent's bracket was doing.²⁴

According to the Downsian model of voter behavior, the rational voter will support the candidate most closely aligned with his or her well defined political beliefs. However, it seems readily obvious that the ability of your sports team to play well has little to do with the ability of a candidate to govern well. Nevertheless, any attempts to rationally evaluate these candidates is inevitably filtered through the emotions one may be feeling at the time, regardless of where those emotions came from

This irrational behavior where irrelevant and extraneous information is brought in to electoral decisions works both ways. A 2004 study indicated that when regions were affected by Acts of God, such as droughts, flu and shark attacks, the incumbent suffered. What is important to note is that the decreased favorability was not entirely due to perceived inadequacy of response. Independent of that effect, voters seemed to blame incumbents for the fact that these disasters occurred in the first place. The negative feelings and hardship caused by the natural disaster led to decreased support of the candidate even when there is no rational way to link the politician to the disaster. Analysis of the 1916 election showed that President Woodrow Wilson got 3% less support in beachfront counties that had recently been attacked by sharks, for no other reason than the shark attacks had put the voters in a more negative mood.²⁵

The Downsian model is a combination of two factors: where candidates fall on the political spectrum and where individual voters' beliefs lie. But even if affective tendencies make

²⁴ Ibid

²⁵ Achen, Christopher and Larry Bartels "Blind Retrospection: Electoral Responses to Drought, Flu, and Shark Attacks." *Princeton University Working Paper*.

it difficult to judge the candidates, surely we are aware of our own preferences. Could it be that irrelevant and irrational forces can alter our very ideologies? Research has found that our own beliefs and values can be significantly affected by totally extraneous factors. This stands in sharp contrast to the assumptions which rational economics and rational voter theory are based on: well defined preferences.

A 2006 study of an Arizona school funding initiative found that support for the change varied according to which polling place a voter visited. When a school was used as the polling place, voters were 2% more likely to support education funding than those voters in other polling places (churches, community centers, etc.). This held true even when controlling for demographic considerations and other factors.²⁶ Other experiments showed that when churches were used as polling places led to greater support for traditionally Christian positions on issues such as gay-marriage and abortion, as well as higher support for socially conservative politicians.²⁷ These effects could even be found in voters who tended to be more liberal on these issues, when asked their views outside of the church atmosphere.²⁸

Both of these studies illustrate a common side effect of our cognitive heuristics: priming. Our brains function via associative memory systems, meaning that when we think about a concept, it comes attached to a variety of thoughts, beliefs and feelings we have connected with that idea. In some cases, this can be as innocuous as eating an ice cream cone and always being reminded of summer, or when smelling a favorite meal consistently leads you to conjure up

²⁶ Berger, Jonah A., Meredith, Marc N. and Wheeler, S. Christian, Can Where People Vote Influence How They Vote? The Influence of Polling Location Type on Voting Behavior (February 2006). Stanford GSB Research Paper No. 1926.

²⁷ Rutchick, A. M. (2010), "Deus Ex Machina: The Influence of Polling Place on Voting Behavior." *Political Psychology*, 31: 209–225. doi: 10.1111/j.1467-9221.2009.00749.x

²⁸ Ibid

memories of your family dinner table. However, in other cases, the associations made by the brain can lead to snap judgments, such as associating members of certain ethnic groups with popular stereotypes.²⁹ What is important for the purposes of this paper is that the emotions and perceptions that come along with a prime can shape our actions in ways not remotely related to a judgmental or thoughtful evaluation of choices.³⁰

The ideas conjured through priming can change more than our perception of issues or people; they can also shape our actions in bizarre ways. For example, a 1996 study asked participants to unscramble word jumbles. Half of the participants unscrambled words that would bring up memories of elderly people, such as *ancient*, *Florida* or *bingo*, while half of them unscrambled words with no coherent theme. After they had finished the task, and believed the experiment over, the participants walked down a long corridor to exit the lab. But in reality, this long walk was the experiment. Researchers clocked how long it took for each participant to reach the exit. They found that those who had been primed to think about senior citizens developed a slower and more geriatric gait, and took a significantly longer amount of time to exit the laboratory.³¹

Environmental priming has been shown to affect our decisions in the marketplace in various ways. A field experiment conducted in a supermarket found that they could make average shoppers decide to buy either a French or German wine, simply by changing the national

²⁹ Kam, Cindy D. "Implicit Attitudes, Explicit Choices: When Subliminal Priming Predicts Candidate Preference." *Political Behavior*. Vol. 29, No. 3 (Sep., 2007), pp. 343-367

³⁰ Bargh, J. A., Chen, M. & Burrows, L. (1996). "The automaticity of social behavior: Direct effects of trait concept and stereotype activation on action." *Journal of Personality and Social Psychology*, 71 (2), 230-244.

³¹ Bargh, J. A, et al. 230-244.

origin of the store's background music.³² Once again, the benefits and costs associated with the wine don't change; it's the exact same drink for the exact same price. Nothing about the background music makes the drink any more or less enjoyable, yet it still factors into our choices.

For both market and electoral decisions, priming does little to change the costs and benefits of your choices. But by activating certain memories and emotions, it can certainly change the way your choices make you feel. And that can make all the difference.

Relative Decision Making

Decision making is all about tradeoffs, according to standard economic theory. Given the finite amount of resources at an individual's disposal at any given time, it is impossible to achieve all one's goals at the same time. Prioritization must occur and economic actors must decide which of their goals they should pursue at a given time, which one gives them the most utility. The idea of relative comparisons between options is as old as economic thought itself and is one of the foundations of market economies.³³

But equally as important is the idea that the value of your choices is known and fixed at any given time. The benefits associated with an action don't change based on what you're comparing it to.³⁴ Taking a common example, an apple is an apple whether you're comparing apples and oranges, or apples and watermelons. The taste of the apple (the benefit) doesn't

³² North, A. C., Hargreaves, D.J. & McKendrick, J. (1999). "The influence of in-store music on wine selections." *Journal of Applied Psychology*, 84, 271-276

³³ Mankiw, N. Gregory "Principles of Economics, 4th ed.," Thomson South-Western Publishers, 2007. Chapter 1: Ten Principles of Economics; pages 3 – 15

³⁴ Ibid

change, no matter what you're comparing it to. In the same vein, neither does the price. The absolute worth of the apple is unchanged no matter what you compare it to.

But science has found that we don't look at value in an absolute sense. Rather, we change our expected value of the choice based on what we're comparing it to. For example, if you ask people if they would be willing to travel 10 minutes to save \$5 on a lamp that normally costs \$50, most people will do it. However, if you ask them if they would travel 10 minutes to save \$5 on a car that normally costs \$20,000, it seems like a waste of time.³⁵ But the differences between these examples are negligible: travel ten minutes, save \$5. *Homo economicus* wouldn't need any more information to make their decision. *Homo sapiens* do.

Another example came as a result of a misprinted bit of marketing. *The Economist* once ran a subscription campaign in which consumers could choose between three packages:

1. Access to Economist.com for one year-\$59.00
2. Delivery of the print version of *The Economist*-\$125
3. Access to Economist.com **and** print delivery of *The Economist*-\$125.³⁶

Looking at the above choices it becomes immediately obvious that choice 2 is undesirable. For the same amount of money, you can get print and web, instead of just web, basically getting a free subscription. This anomaly did not go unnoticed, as scientists decided this was perfect fodder for an experiment. Unsurprisingly, when this offer was made to 100

³⁵ Kahneman, Daniel, Paul Slovic and Amos Tversky (eds.), *Judgment under Uncertainty: Heuristics and Biases*. Cambridge, U.K.: Cambridge University Press, 1982

³⁶“The importance of irrelevant alternatives” *The Economist*. May 22nd, 2009. April 22, 2011.
“http://www.economist.com/blogs/democracyinamerica/2009/05/the_independence_of_irrelevant>

participants at an MIT study, they chose option 3 with a wide margin, with 84 people choosing the combination plan, with nobody selecting the print only package.³⁷

After this initial run, the experiment was repeated with one minor tweak: researchers deleted the print only option as a choice. Intuitively, this should not have affected responses. After all, the print option was uniformly ignored and the other choices had not been altered in the slightest. But even though no participant chose the print option, its presence still had incredibly relevant effects. In the second study, when participants could only choose between the web and combination options, the initial results were flipped. Only 32% of the respondents went with the combination package, with the remainder opting for the cheaper web-only option.³⁸

Why should the presence of this option that nobody wanted in the first place have such an impact on people's decision making? It all ties back to heuristics and the limitations of our mind. Our powers of perception not built to be able to analyze every issue and have an absolute conception of value. Even our senses are constantly being tricked by the relative state of our surroundings. A cursory glance through a collection of optical illusions shows numerous examples showing our perception of size can be altered by changing the surroundings of an object. Surround a square with smaller circles, the square looks bigger. Surround that exact same square with larger circles, the square looks smaller.³⁹ Considering that more than a quarter

³⁷ Ibid

³⁸ Predictably Irrational, p 134

³⁹ Luckiesh, Matthew. Visual Illusions. Dover: Dover Publications, 1922.

of our brain is solely devoted to our powers of sight, is it that surprising to believe that other mental faculties are similarly affected?⁴⁰

Yet another limitation of our brain comes into play when discussing relative measures of value. Our minds are miserly, trying to reach conclusions with the minimum amount of effort possible.⁴¹ When weighing two choices, there are multiple factors that go into deciding which one is better. In the above example with *The Economist*, when choosing between the web and combo offers, you have to consider factors such as cost and convenience, just to name a few. Your mind must weigh the extra money spent with any benefits that might come from having the print copy in addition to online access. But when the print only version is thrown into the mix, the mind has an out. It's obvious that the combo is better than the print only, no heavy lifting or taxing thought required. So your brain comes to that conclusion not because it's the best answer, but because it's the most apparent answer.⁴²

The preferences which shape utility are supposed to be well defined. How can *homo economicus* decide which option is better when he has no conceptualization of what "better" means? The relative evaluation of value found in these studies spits in the face of that assumption, and as a result, the foundations of rational choice theory.

Innumeracy

Numbers don't lie, or so the old adage goes. Figures are objective well defined ways to

⁴⁰ Schreiber, Kai. "Neuroscience: How Much Brain Power Devoted to Vision?" Allexperts.com October 2nd, 2007. April 21, 2011. <<http://en.allexperts.com/q/Neuroscience-2933/Brain-Power-Devoted-Vision.htm>>

⁴¹ Orbell, John and Robyn M. Dawes. "A "Cognitive Miser" Theory of Cooperators' Advantage" *The American Political Science Review* Vol. 85, No. 2 (Jun., 1991), pp. 515-528

⁴² Predictably Irrational, p 234

communicate information without bias. However, even if it can be said that numbers *contain* this absolute truth, whether or not people can decode this truth is another question entirely. Due to widespread difficulties in interpreting mathematical terms, studies have found that saying the same figure two separate ways can greatly influence people's decisions. Is 10% the same as 10 out of 100? In math, by definition it is. But in communication and psychology, the differences are vast.

Innumeracy, or the inability to comprehend numbers, affects people even when facing the most simple of problems. In a 1997 study, a sample of women veterans was asked "Imagine that we flip a fair coin 1,000 times. What is your best guess about how many times the coin would come up heads in 1,000 flips? Of the 287 respondents, 46% could not give the correct answer of 500. A third of these incorrect answers gave values of less than 300."⁴³

The questionnaire further established the numeracy of the respondents before asking them questions about risk reduction in light of included information about the benefits of mammograms. The researchers found a linear correlation between the women's numeracy and their ability to accurately translate the information given into an accurate description of the decreased risk of death when mammograms are used.⁴⁴

Furthermore, this Schwartz study compared the responses of those who read information detailing the relative risk reduction associated with mammograms (the percentage of women who were saved by the procedure) and those who read information explaining the absolute number of women saved by the procedures (the strict number that had been saved). The information

⁴³ Schwartz LM, Woloshin S, Black WC, Welch GH. "The role of numeracy in understanding the benefit of screening mammography." *Ann Intern Med.* 1997;127: pp 966–71.

⁴⁴ *Ibid*, pp. 966-971

presented to both groups was identical in a mathematical sense; the only difference was whether or not the treatment data was described relatively or absolutely.

Later, when asked to project death rates for women who had or hadn't received a mammogram, researchers were able to see if their projected figures accurately portrayed the risk reduction information they had just read. For example, if a respondent had just read that mammograms would save 4 women/1000 and the respondent's estimates on death rates differed by 4 between the mammogram and non-mammogram group, the answer was deemed to be accurate.

Schwartz and colleagues found that respondents given relative data were almost half as likely to correctly identify the risk as those who received absolute data. The relative risk respondents only had a 17% accuracy rate, as opposed to a 33% accuracy rate for those with absolute data.⁴⁵ Even though they had both gotten the same study, the same information, by changing the way that it was presented, the two groups had vastly different interpretation

Later researchers wondered if this level of innumeracy could only be found in respondents of low education level. Only 36% of those surveyed in the Schwartz study had any college level education. To discover this, researchers took a sample of 463 highly educated men and women and asked them basic questions to test their abilities to understand and convert between percentages and proportions. Their findings on basic innumeracy matched the previous study.

For example, when asked "Which of the following numbers represents the biggest risk of getting a disease: 1 in 100, 1 in 1000 or 1 in 10?" 21.8% of respondents, about 100 people, could

⁴⁵ Ibid pp. 966-971

not correctly answer.⁴⁶ Converting odds into percentages created even more difficulties for the group. Four-fifths of those surveyed could not say that if a lottery player had a 1 in 1000 chance of winning, that figure translated into a .1% likelihood of hitting the jackpot. This translates into over 370 incorrect responses.

These studies indicated that regardless of education level, the American public had difficulty with the finer points of proportions. Later research hinted that these problems are not just endemic in laypeople. Trained medical professionals can sometimes have difficulty interpreting risk as it is portrayed in medical studies. In one study, 235 physicians reviewed two fictionalized trials, where in each 1000 people were randomized for hypertension treatments. After reviewing the articles, the doctors noted how the information would affect the recommendations they made to patients.

The first study framed the results as going from a 7.8% mortality rate in the control group to a 6.3% rate in the experimental group. The second study framed it as a 20% reduction in mortality. The actual reduction of the death rates in both studies was identical; 15 fewer patients died in each trial. But citing the relative risk over the absolute risk led to disparate reactions from the physicians. 46% (108) of the doctors surveyed reacted differently to each of the two trials. Of those with varied responses, 97 doctors (89.8%) found the study mentioning the relative risk frame of a 20% reduction more persuading.⁴⁷

From these studies, we can see that innumeracy affects decision making at various

⁴⁶ Lipkus, Issac, Greg Samsa and Barbara Rimer. "General Performance on a Numeracy Scale among Highly Educated Samples. *Medical Decision Making* 21 (2001), pp 21-37

⁴⁷ Forrow, Lance, William Taylor, and Robert Arnold, "Absolutely Relative: How Research Results are Summarized Can Affect Treatment Decisions" *American Journal of Medicine* 92, no 22 (1992), pp. 121-124

educational levels and that the presentation of data can change human behavior in ways that are not supported by the actual data shown. David Ropeik of Harvard says that our lack of numerical understanding can create a “Perception Gap” where the way we feel about a risk is out of line with the actual threat of harm posed. Such gaps can cause us to react strongly to threats that are unlikely to cause harm but are unfamiliar or seem scary, while simultaneously letting us ignore threats which are much more dangerous but are more commonplace and familiar⁴⁸

Although the factors that can cause this gap are multifaceted, one player in the equation is a media bias towards dramatic responses, according to Ropeik. In his book, “How Risky Is It, Really?” he cites a 2006 AP article which described how birth control patches were 100% more likely to cause deadly blood clots than the pill form. Towards the end of the article, it mentions that the death rate increased from 3 in 10,000 to only 6 in 10,000, giving the relative risk mentioned in the lead of the story much needed context. As such, the relative risk and absolute risk must be present in order to give readers the tools needed to help judge risk. Related to this is the value of listed sample size in news articles, which Ropeik says adds additional framework to the information, as well as explains how representative the study’s results could be.⁴⁹

Trust

While not per se irrationality at work, the amount that a communicator can be trusted can have a major impact in how humans interpret the costs and benefits of a message. This makes sense, if you don’t trust the information you are getting, the expected benefits and costs are up in the air. Unfortunately for the major American political parties, the levels of trust we have for

⁴⁸ Ropeik 52-56

⁴⁹ Ibid 52-56

them seem to be shattered. A University of Chicago study gave a random sample of participants very simple and commonplace statements to evaluate as true or false. Examples included “the sun is yellow” (people agreed that it was) and “a camel is bigger than a dog” (uniform agreement on this as well). A second group was asked the same set of questions, with one small change. The questions now read “The Democratic Party says the sun is yellow” or “The Republican party says a camel is bigger than a dog” (or vice versa).

It was discovered that while people had been more than willing to accept the unattributed statements, simply associating the claims with political parties made respondents question their veracity. They began to question the statements vigorously (“what breed of dog are we talking about?”, “maybe the sun is more orange than yellow”, etc.) and respondents were more likely to say the claim was false.⁵⁰

Even if mentioning political parties had nothing to do with the factual nature of the statement, the connotations of distrust that came attached still affected people’s perceptions. What’s more, the doubt existed regardless of which party was mentioned. Democrats were just as likely to distrust statements attributed to their own party as statements connected with the GOP. Republicans reacted similarly, regardless of the party mentioned.

Issues of trust can have a major impact on any relationship, including business and electoral ones. On a macro level, trust in government officials has been found to increase citizen happiness⁵¹. It also has more practical and objective benefits: voluntary compliance with laws increases as faith in the democratic system goes up.⁵² On the micro level, politicians have a less

⁵⁰ Perfectly irrational. P 262

⁵¹ Barber, Bernard. 1983. *The Logic and Limits of Trust*. New Brunswick, NJ: Rutgers University Press.

⁵² Putnam, Robert D. *Making Democracy Work*. Princeton, NJ: Princeton University Press.

abstract reason to desire the trust of the citizenry: the trust of constituents has been found to be strongly correlated with chances of electoral success in government races at all levels.⁵³ The lesson to take home is that the general distrust of politicians, so strong that even common knowledge comes into question, has ramifications far beyond a particular electoral race and are worrying indeed.⁵⁴

Although most research discussed in this paper deals with messages, and how people's irrational influences affect the perception of those messages, earning true trust involves more than just words: actions are needed. It is important for communicators to note that no matter how well-crafted their arguments are, their words are meaningless if they are not believed. For political communicators, it seems that they are already at a disadvantage when speaking to the public, as the mere idea that politicians are connected to a message makes it more suspect. Especially in political circles, communicators must walk the walk, not just talk the talk.

An interesting case study in trust comes from national reactions to the "mad cow disease" scare at the start of the millennium. When the first infected beef was found in Japan, then Agricultural Minister Tsutomu Takebe quickly assured the public that their meat was safe and that the risks of contracting the disease were almost nonexistent.

From a rational standpoint, he was right. Japan only found a few infected animals throughout the whole country, and other countries (like the UK) had lived with animal infection rates thousands of times higher while seeing only .00001% of their human population contracting the disease. The odds of the virus having any effect on a Japanese human were almost

⁵³ Parker, Glenn R. "The Role of Constituent Trust in Congressional Elections" *The Public Opinion Quarterly* Vol. 53, No. 2 (Summer, 1989), pp. 175-196

⁵⁴ Gershtenson, Joseph and Dennis L Plaine. *Trust in Government: 2006 American National Election Studies Pilot Report*. Eastern Kentucky University. April 10, 2007

nonexistent. The costs associated with eating meat had barely risen, especially compared with the statistically higher risk of cholesterol or cancer people happily live with while eating regular beef.⁵⁵

However, as isolated cases of infected cows continued to spring up throughout Japan, trust in Minister Takebe's words dwindled. Beef sales fell to record lows, and half a year after the crisis, sales were still 40% lower than before the infection was discovered.⁵⁶ The rational costs and benefits of eating meat had barely changed. But Japan's trust in their government had plummeted, and the Japanese economy suffered as a result.

Contrast that to the American response to the crisis. Like the Japanese government, they were quick to inform the populace that the odds of getting sick from eating meat were trivial. But as they were saying this, they also instituted a major recall on all meat that may have come in contact with infected beef. Even though the scientific evidence did not support such an action, the US government decided to act "with an abundance of caution", withdrawing all meat coming from any slaughterhouse remotely related to infected beef.⁵⁷ As a result, beef sales avoided the precipitous decline Japan had suffered and consumption continued on relatively unfazed.⁵⁸

The important lesson here is that the costs and benefits of eating meat in any country barely changed as a result of the mad cow scare. As a result of this, the messages given by the government in response to the disease were incredibly similar. But the reaction of the populace

⁵⁵ Cancer Project. *Cancer Prevention and Survival: Cancer Facts-Meat Consumption and Cancer Risk*. Physicians Committee for Responsible Medicine. March 1, 2005. April 12, 2011
<http://www.cancerproject.org/survival/cancer_facts/meat.php>

⁵⁶ Ropeik p. 74

⁵⁷ Ropeik. P 143

⁵⁸ Bonne, Jon. "Americans' Beef Habits Hard to Change" MSNBC.com. Jan 13, 2004. April 13 2011.
<http://www.msnbc.msn.com/id/3900341/ns/business-mad_cow_in_the_us/>

was markedly different. The reason for this is simple: the US government's actions were able to shore up the trust of their citizenry. The trust that they had garnered made the government's messages that much more salient.

Lest we think that this had more to do with American culture and its fascination with meat, Germany originally responded to their mad cow scare like Japan, with similarly disastrous results for the economy. But by quickly responding to the market crash by reorganizing their regulatory system and agricultural practices, sales rebounded. The Germans felt that they could trust their government, and their food, again.⁵⁹

Although it may be rational to demand trust before rationally weighing a choice, the actions that must be taken to earn trust can be quite irrational. Statistically, the recall of the beef did almost nothing to ensure the safety of the public: almost all wouldn't have gotten sick anyway. The lesson here is that when people's amygdalas are activated, fear is hard to overcome, and communication may be accompanied by actions going above and beyond any sort of reasonable response.

Framing and Loss Aversion

For yet another foible of human decision making, we turn once again to beef sales. Researchers at the University of Iowa asked subjects to taste two samples of beef and then describe their tastes. One slab was labeled "75% lean" while the other was labeled "25% fat". As anyone with a passing knowledge of arithmetic realizes, the difference between the two slices is nonexistent. In fact, the meat was cut from the exact same skillet. However, people consistently decided that the meat described in terms of fat was greasier and tasted different than

⁵⁹ Ropeik, p. 147

the sample described by its leanness. What's more, this difference remained when people were told the labels *after* eating the meat.⁶⁰

The rational costs and benefits associated with eating the meat hadn't changed: it was exactly the same food every time. In addition, information hadn't been hidden from the participants in any meaningful way, since 75% lean beef is necessarily 25% fat beef. However, saying the exact same thing two separate ways nevertheless affected people's ability to evaluate the product, even after they had experienced it firsthand.

This is a simple example of the complex phenomenon known as "framing". Simply put, a frame is a way of presenting an issue.⁶¹ Depending on the frame, a politician is either pro-life or anti-choice, etc. Framing an issue simply highlights an aspect of it and primes that aspect in the minds of the audience. But as seen above, proper (or perhaps improper) use of framing take one aspect of an issue, slightly change the focus, and lead the audience to reach a disparate conclusion as a result.

Although many types of issue frames exist (episodic vs. thematic, freedom vs. safety, etc.)⁶² much research focuses on the idea of the loss-gain frame. In this frame, the negative tradeoffs of an action are highlighted over the gains made. The above example shows how this can affect people's perception of a concrete object, like beef, which they have evaluated first

⁶⁰ Levin, Irwin P. and Gary J. Gaeth "How Consumers are Affected by the Framing of Attribute Information Before and After Consuming the Product" *The Journal of Consumer Research* Vol. 15, No. 3 (Dec., 1988), pp. 374-378

⁶¹ Gross, Kimberly and Lisa D'Ambrosio "Framing Emotional Response". *Political Psychology*. Vol. 25, No. 1 (Feb., 2004), pp. 1-29

⁶² "Framing Public Issues. *Frameworks Institute* June 2004. April 11, 2011
<<http://www.frameworksinstitute.org/assets/files/PDF/FramingPublicIssuesfinal.pdf>>

hand. So it stands to reason that when dealing with abstract concepts or ideals, framing effects should also play a role.

The earliest research on framing was done by Amos Tversky and Daniel Kahneman in the early 1980s. They divided participants up into two groups and presented both with a hypothetical situation. "Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume the exact scientific estimate of the consequences of the programs is as follows."⁶³

Each group was then given two options to choose from. Group 1's choices were as follows:

- Program A: "200 people will be saved"
- Program B: "there is a one-third probability that 600 people will be saved, and a two-thirds probability that no people will be saved"⁶⁴

Group 2 received these options:

- Program C: "400 people will die"
- Program D: "there is a one-third probability that nobody will die, and a two-third probability that 600 people will die"⁶⁵

From a completely rational perspective, there is no difference between Program A and Program C. If 200 out of 600 people are saved, then 400 of them are not saved, and will die. Likewise, Programs B and D are equivalent; the only difference is that one is couched in terms of

⁶³ Tversky, Amos and Daniel Kahneman. "The Framing of Decisions and the Psychology of Choice" *Science*, New Series, Volume 211, Issue 4481 (Jan 30, 1981), pp 453-458

⁶⁴ Ibid, pp 453-458

⁶⁵ Ibid pp. 453-458

people saved while the other describes how many people will die. The costs and benefits associated with both of these actions are exactly the same.

But people's response to these scenarios was markedly different. The first group, refused to gamble the lives of the 200 that could definitely be saved. They chose Program A with a 72%-28% split. But when Group 2 received the exact same options, described slightly differently, they decided a slim chance of saving everyone seemed preferable to the assured death of 400. 78% of respondents decided that Program D was preferable, with only 22% siding with the non-gamble.

The irrational influences listed in this paper need not work in isolation. This particular example not only illustrates the power of framing, but also hinges on the innumeracy of people, described above. But yet another factor is at play when a choice like this is presented: loss aversion. We tend to care more about losing something we have than gaining something we don't. This has major implications in both individual economic decisions and nationwide political decisions.

Robert Jervis concluded that many foreign policy decisions seem to be motivated by avoiding losses in international influence, rather than focusing on gains made. For example, in the late 1970s, concerns about the weakening of American presence in Ethiopia led to concerns that the effect would spread throughout the African continent. Little thought was paid to the idea that increased influence in Somalia, occurring around the same time, could have a similar domino effect. The potential for loss was much more salient.⁶⁶

⁶⁶ Jervis, Robert. "Political Implications of Loss Aversion" *Political Psychology* Vol. 13, No. 2, Special Issue: Prospect Theory and Political Psychology (Jun., 1992), pp. 187-204

On a similar note, loss aversion may explain one of the most damning actions that a politician could ever take: a cover-up. In many cases, unacceptable amounts of dishonesty and illegal actions are taken to hide a relatively minor offense from the public. Watergate is the classic example of a politician attempting to obscure the truth, only to have it backfire in their face⁶⁷. However, these actions are entirely consistent with the notion that people will engage in riskier behavior if there is some chance they can avoid a loss.

The above experiment, as well as others done by Tversky and Kahneman illustrate how the idea of regaining a loss and returning back to the status quo can motivate gambling behavior in ways that pure gains just do not.⁶⁸ This tendency helps to explain the mindset of politicians trying to hide their misdoings. In order to avoid the possibility their prestige will be damaged, politicians may dig themselves into a bigger hole, all as a result of loss averse tendencies. The fact that so many of these cover-ups end up dooming political careers shows the dangers associated with this particular heuristic.⁶⁹

However, another school of thought says that politicians may be acting perfectly rational: it is the irrationality of the electorate that is at play here. Dennis Ross examines the idea that a small loss can have a huge effect on a regime's support.⁷⁰ If a failing is primed in the populace's mind, a loss adverse people will lose trust with the powers that be. Therefore, in order to stay in power, nations and politicians will engage in risky behavior to ameliorate or eliminate any

⁶⁷ The Watergate Files. *The Watergate Trial>Overview*. Gerald R. Ford Library & Museum. June 21, 2009. April 12, 2011.

<http://www.fordlibrarymuseum.gov/museum/exhibits/watergate_files/content.php?section=1&page=a

⁶⁸ Tversky, Amos and Daniel Kahneman. "Loss Aversion in Riskless Choice: A Reference-Dependent Model" *Quarterly Journal of Economics*. Volume 106, Issue 4. Pp.. 1039-1061

⁶⁹ Paulos, John Allen. *A Mathematician Plays the Stock Market*: New York: Basic Books. 2003 p. 24

⁷⁰ Levy, Jack S. "Loss Aversion, Framing, and Bargaining: The Implications of Prospect Theory for International Conflict" *International Political Science Review / Revue internationale de science politique* Vol. 17, No. 2, Crisis, Conflict and War. Crise, conflit et guerre (Apr., 1996), pp. 179-195

existing losses. Even when such actions do not advance national interest and the country may be better off if they just cut their losses, so to speak, such actions do not benefit the individual politician come election time. The voters may ignore any successes of the candidate, focusing on the times that they failed instead. Therefore, it may be perfectly rational for a politician to go to great lengths to hide their failings, when faced with an irrational constituency.⁷¹

Loss aversion and framing are two of the most influential biases in social science today, with numerous stories examining their effects on politics, the media and everything in between.⁷² What's more, these two separate influences not only work in tandem with each other, but other factors that shape our decisions. As seen in the literature above, these influences can determine more minor and mundane decisions as well. Whether we are a shopper deciding which package of meat to buy, or an architect of foreign policy determining whether or not to start a war, framing and loss aversion can still have an effect

Artificial Coherency

In 1960, political scholars at the University of Michigan published one of the most well-known analyses of American voting behavior, aptly titled "The American Voter". Among its numerous findings came one observation about issues in an election campaign: they aren't that important. Interviews conducted for the work found that only about 12% of the electorate seemed to operate under any consistent political ideology.⁷³ What's more, all respondents seemed to generally agree on general ideas about political issues, regardless of political

⁷¹ Jervis, Robert, *Political Psychology* Vol. 13, No. 2, Special Issue: Prospect Theory and Political Psychology (Jun., 1992), pp. 187-204. Published by: International Society of Political Psychology

⁷² Callaghan Karen and Frauke Schnell, eds. "Framing American Politics" Pittsburgh: University of Pittsburgh Press, 2005

⁷³ Campbell, Angus, Philip E. Converse, Warren E. Miller, Donald E. Stokes. "The American Voter" Chicago: University of Chicago Press 1976. P.24

affiliation. Democrats could be found with Republican views on foreign policy, and Republicans did not differ greatly on general issues of domestic policy from Republicans.

As stated before, rational voter theory is based on the idea that voters have well defined political preferences that they seek to advance. This longitudinal study serves as yet another contradiction of that idea. So what causes voters to split themselves between the two major political parties? According to “The American Voter”, political party is more often than not socialized into a person from the beginning of their lives, and that initial framework becomes relatively stable as time passes.⁷⁴

In other words, people become Democrats because they were born Democrats, and vice-versa. Are there many ways that changes in parties (or to use the technical term “realignment”) can occur? Of course. Various social and personal forces have been identified that may cause switches in party loyalty.⁷⁵ However, this University of Michigan report attempted to give a causal arrow to the observation that children, both in the US and in other democracies, overwhelmingly tend to vote the way their parents do.⁷⁶ What’s more, this pattern of voting remains relatively consistent, even as the voters’ age and their situations change.

Behavioral economics has a term for phenomena like this: “artificial coherency”. This is a tendency for people to consistently repeat their actions from the first time they encountered an event. Once a decision is made, subsequent decisions are based off of it, regardless of if that decision is always a good idea. Basically, people fall into habits.

⁷⁴ Ibid. 35

⁷⁵ Sanders, Elizabeth. “In Defense of Realignment and Regimes: Why We Need Periodization” *Polity* Vol. 37, No. 4 (Oct., 2005), pp. 536-540

⁷⁶ Achen, Christopher H. “Parental Socialization and Rational Party Identification” Vol. 24, No. 2, Special Issue: Parties and Partisanship, Part One (Jun., 2002), pp. 151-170

What is important for the terms of rational behavior is that the reasons behind the first encounter need not be typical. For example, a consumer may decide that it is not worth paying extra money for designer coffee, being perfectly happy with the cheap, instant brew they usually drink. But during a day where they are particularly tired, they bite the bullet and buy a more expensive coffee, rather than going through the time and effort making it themselves. On that day, the benefits outweighed the costs. However, from then on, when encountering that coffee place, they are more likely to stop in for a drink, remembering how good it was the last time they visited. The fact that it was only good due to the specific state of fatigue they were in that first day becomes irrelevant. They liked it before; it stands to reason they would like it again, even if the reasons behind their initial enjoyment no longer apply.⁷⁷

Dan Ariely used the above example to illustrate the idea of self-herding. This is in contrast to “behavioral herding” where people determine their behavior by watching others. Behavioral herding is equivalent to standing in a long line, figuring that if everyone else is willing to wait for something, there must be something to it. When artificial coherence is in play, people in effect stand in line behind themselves, figuring if they were willing to do it before, there must be something to it.

This idea was tested using a variation of the ultimatum game, a classic tool used to describe rational choice behavior.⁷⁸ The game requires two players and consists of two parts. In the first part, the first player is given a sum of money. He/she is asked to propose a split of the money between the two players. Once the split is made, the second part begins and the second

⁷⁷ Predictably Irrational p. 39

⁷⁸ Ariely, Dan. “The Upside of Irrationality” New York: Harpers Collins, 2010. Pp 265-267

player is allowed to accept or reject the offer. If they accept, the split goes through as proposed. If they do not, neither player gets any money.

However, this version of the game had a little twist. Unbeknownst to each participant, there was no other player in this game. Researchers invented a fake second participant so that they could control the splits the game was played with. Researchers offered each player \$2.50, while pretending a third party had taken \$7.50 of the split for themselves.⁷⁹

Each participant was given the exact same choice, the exact same split to accept or reject. However, before making their decision, they were made to watch a 5-minute long clip either featuring depressing or happy images. A majority of those exposed to depressing images let their emotions affect their judgment and refused the offer. Those seeing the happy images did just the opposite.

While the effects of these irrelevant emotions on decision making is interesting in its own right, the study did not conclude until much later. Participants were called back to play the same game again, with the same payout structure. But this time they played without watching any scenes beforehand. Although the initial emotions participants felt during the first game had dissipated, their effects were still present. Those who had previously rejected the offer did so again, even without negative influences clouding their judgment. Conversely, those who had seen the happy scene and previously accepted the offer were more than happy to repeat their past actions. Even though the feelings that had set their initial reaction were no longer a factor, their future actions were still in lockstep with their first time. Perfectly consistent and perfectly irrational.

⁷⁹ Upside of Irrationality, 270

A similar experiment was done at MIT with a group of students. They participated in an auction involving items of various market values including a cordless trackball, cordless keyboard and bottles of wine varying in quality, just to name a few. But before the students bid, they were asked to put the last two digits of their social security number next to each entry on their auction sheet in the form of a price. If the last two digits of their SSIN were 62, they would list \$62, etc. The students then were asked if they would bid that price for each item, yes or no. After that question, they were free to bid whatever price they wanted in the actual auction, their answers to the Social Security question would not factor in. After the auction had concluded and prizes had been given out, the data was analyzed.

The findings from this study are two-fold. First of all, they found that the act of putting a number next to their bids affected how much they were willing to offer. Those who put down higher numbers for the social security question invariably bid higher for all products listed. The effects went up stochastically, where SSIN digits between 00-19 consistently bid less than those with digits between 20-39, and so on.⁸⁰ This is a form of priming known as “anchoring”, where a random number can be used to reset a person’s baseline when evaluating prices.⁸¹

But secondly, the participants in this study displayed a perfect example of arbitrary coherence. The amount that they were willing to pay for products was totally arbitrary, influenced by the totally irrelevant factor of their SSIN. However, once that baseline was reset, auctioneers acted perfectly coherently. Uniformly, each participant bid more for the keyboard than the trackball, and paid more for a nice bottle of wine than they did for a cheap bottle of

⁸⁰ Ariely, Dan, George Lowenstein and Drazen Prelec, “Coherent Arbitrariness: Stable Demand Curves Without Stable Preferences” *Quarterly Journal of Economics*, 2003

⁸¹ Wansink, Brian, Robert J. Kent and Stephen J. Hoch “An Anchoring and Adjustment Model of Purchase Quantity Decisions” *Journal of Marketing Research* Vol. 35, No. 1 (Feb., 1998), pp. 71-81

wine.⁸² So even though the start point they used as a springboard was irrationally formed and randomly chosen, future actions followed logically and consistently from that starting place.

For both political and market economies, the idea of following your past decisions so uniformly leads to trouble. In market economies, this habit calls into question the complete power of supply and demand on prices. It shows that regardless of what the market is like, memories of past behavior can creep into purchasing decisions. For elections, these findings call into question the ability of a candidate or policy issue to shape an election. For many voters, their decision may have been made decades ago.

Benefits of Irrationality

Irrational behaviors can lead us to be worse off in many ways. They cloud our perception of value; persuade us to fear things that we shouldn't and to be calm about things we should be worried about. But the effects of irrational behavior are not uniformly bad. In fact, in some situations, what believers in *homo economicus* would deem "irrational behavior" can actually lead to higher dividends than the result rational economics would predict.

One of the basic models used to describe rational behavior is the idea of the "prisoners' dilemma" game.⁸³ The game is set up as follows: Two prisoners are accused of working together on two crimes, one minor felony and one grand offense. The minor felony carries a sentence of 2 years, the grand offense can net you 20 years in jail. The police have evidence needed to convict them both on the smaller charge, but need a confession to convict for the more serious

⁸²Ariely, et al

⁸³ Ooms, Eric and Saskia Pennings. *Amartya Sen and Rational Choice*. Werkstukken. 2006

crime. The prisoners are separated so that they cannot communicate and given two options: confess or don't confess. Their actions will lead to one of three possibilities:

1. Neither prisoner confesses. Both are convicted for the lighter charge and are convicted for 2 years.
2. Both prisoners confess. They are both convicted for the larger offense, but get 10 years instead of twenty, due to their cooperation with police.
3. One prisoner confesses. In that case, the confessing prisoner is set free for his help, but the prisoner who stayed silent is convicted for the maximum sentence: 20 years.

In this situation, *homo economicus* will always pick to confess. It makes perfect sense to do so. If he doesn't confess, the worst case scenario is that his partner rats him out and he spends 20 years in the slammer. But even if both of them stay silent, they are still both stuck in jail for 2 years. However, if one confesses and defects from his partner, he is guaranteed to spend no more than 10 years confined. And there's always the possibility that he will be released scott free, if he confesses and his partner does not. Regardless of what his partner does, it will always be more rational to pick to confess.

However, because it's rational for both prisoners to defect, rational choice theory will say that every time people are confronted with this scenario as a one-time choice, they will both defect. As a result, there is only one possible end to the game when rational people play: both players will confess.

This model is literally game theory 101.⁸⁴ The ratio between payoffs can change based on the scenario. The model can even change so that instead of avoiding penalties (like a prison

⁸⁴ Gronke, Paul. "Political Science 210: Political Behavior" Syllabus. Reed University. August 2002. April 11th, 2011. <<http://people.reed.edu/~gronkep/pol210-f02/syllabus.html>>

sentence), players of this game can be seeking to gain rewards (such as making more money).⁸⁵ But one common feature in all prisoners' dilemma game is that the result that rational behavior will inevitably lead to does not lead to the best result for every player.

In the above example, both prisoners received a 10 year sentence due to their rational thought process. However, if they had agreed to cooperate and both had stayed silent, they would have received a lighter 2 year sentence. Because both prisoners are worse off than they began, this result is deemed to be a "pareto-inefficient" outcome.⁸⁶ Rational choice theory would say that these outcomes are unfortunate, but inevitable due to our rational mind.

This basic principle of the prisoners' dilemma has been applied in a variety of situations. Political science, for example, uses it to describe situations of mutually assured destruction in international conflicts.⁸⁷ Businesses use its teachings to determine how to react to competitors in the marketplace⁸⁸. This model's importance cannot be overstated.

However, experiments, both in the laboratory and out have proven that cooperation is possible in these games. When total strangers were asked to play one shot of the prisoner dilemma game, cooperation rates ranged between 33%-50% depending on the demographic factors of the participants^{89 90}. Although rational economics would describe these players as

⁸⁵ Chabuk, Timur. "Friend or Foe" Game Show Analysis Using Spotfire." Application Report. University of Maryland. October, 2002. April 14, 2011. <<http://www.cs.umd.edu/class/spring2006/cmssc838s/hw2/chabuk/appChabuk.pdf>>

⁸⁶ Andreoni, James, and Hal Varian. " Preplay contracting in the Prisoners' Dilemma." *Proceedings of the National Academy of Sciences*. 96. (1999): 10933–10938. Print.

⁸⁷ Brams, Steven J. and D. Marc Kilgour *International Studies Quarterly* Vol. 32, No. 1 (Mar., 1988), pp. 3-28

⁸⁸ Marks, R.E. "Repetition and Reputation: Resolving the Prisoner's Dilemma" *American Sentinal*. 2000. April 15, 2011. <<http://www.agsm.edu.au/bobm/teaching/SET/week9.pdf>>

⁸⁹ List, John A. "*Friend or Foe?* A Natural Experiment of the Prisoner's Dilemma" *Review of Economics and Statistics*, August 2006, Vol. 88, No. 3, Pages 463-471 (doi: 10.1162/rest.88.3.463)

⁹⁰ Shafir, Eldar, and Amos Tversky, "Thinking Through Uncertainty: Nonconsequential Reasoning and Choice," *Cognitive Psychology* 24:1(1992), 449–474.

foolish, they actually maintained higher rates of rewards than the models for *homo economicus* predicted. Therefore, it can be said that the “rational human” is really a rational fool, as their attempts to maximize their benefits can lead to a worse result for all.⁹¹

Other game theoretic models fall apart when used in the real world. One such example is the ultimatum game described above.⁹² This game involves one player who is given a sum of money, asked to divide it between themselves and another player. That second player can then choose to accept the split as is, or reject it and leave both players with nothing. Rational economics predicts this game will end with the most uneven split possible. As long as player two is offered some token amount of money, they should accept it no matter how inequitable the divide. After all, if they rejected the split, they would walk away empty-handed. Something is better than nothing. Knowing this, player one will offer as little money as they can, and keep the rest to themselves. The theory behind this chain of events is sensible, reasonable, rational and just doesn't hold up in the real world.

When economists ask real human beings to play this game, they find that the split tends to be about 60/40. People are hesitant to make deals that are too unfair and aim for a more equitable division of the funds, which are almost always accepted. In fact, there is only one group that routinely and consistently makes a vastly unequal offer: economists. Those who are trained to believe in human rationality are more likely to follow the models they have been taught. This all works well when they play with other economists, who regularly accept the uneven split as predicted by rational choice theory. However, when this offer is made to non-

⁹¹ Sen, Amartya K. “Rational Fools: A Critique of the Behavioral Foundations of Economic Theory” *Philosophy & Public Affairs* Vol. 6, No. 4 (Summer, 1977), pp. 317-344

⁹² “The Upside of Irrationality” Pp 265-267

economists, the offer is normally rejected immediately, leaving both players with no gains from the exercise.

A belief in fairness is not in and of itself rational. It's hard to square the idea of willingly giving up money or other benefits with the idea of economic utility and rationalism. The participants in these studies never meet and will never be paid back for their kindness. However, the norms of reciprocity seem so systematically ingrained in people, affecting their actions in perfectly economically irrational ways.⁹³ But can we really say that the ideas of cooperation or equity are a bad thing? Just because these ideals are irrational in the traditional sense doesn't make them undesirable.

It's not hard to see how people acting to advance reciprocity and fairness can be a good result of irrational behavior. But as shown above, there is a flip side to this. In the ultimatum game, players often rejected offers too weighted towards the other player. Once again, this seems irrational, since getting something should be better than getting nothing. But even though this tendency towards approaching unfairness with revenge or spite may seem irrational, it can serve as a powerful reinforcement tool. If you know someone you wrong will try and get even with you, even when their vengeance doesn't advance their interests at all, it becomes much less attractive to be unfair. Although the reaction of vengefulness may be irrational in and of itself, it still serves as a strong incentive for people to behave fairly.

Literature abounds with examples of this irrationality. Hamlet, for example, shows a man whose desire for vengeance certainly led to a sub-optimal result (a.k.a. death). However, it also showed how failure to account for this human tendency can result in unintended consequences

⁹³ Ibow, J., P.A Lewis and J.H. Runde (2005). 'Uncertainty, Conventional Behaviour and Economic Sociology.' *American Journal of Economics and Sociology*, 64, 507-32.

(a.k.a. Claudius's death). This depiction of human irrationality at its finest makes the passage at the beginning of this paper all the more ironic.⁹⁴

Rational economists would have you believe that human cooperation is only sustainable when there's a strong incentive for cooperation. Remove the promise of self-interested benefit, and your friends, your business partners, any human being will defect and break their promises. Thankfully, these experiments show that is not always the case. People are willing to work together and cooperate for no other reason than it seems like the fair thing to do, no economic utility required. What's more, these norms are enforced by another irrational influence, where people will sacrifice their own gain simply to combat what they see as unjust behavior on the part of others. The irrational man understands something that every kindergartener knows, but seems to elude *homo economicus*: sharing is caring

Lessons to learn

So as the studies outlined in this paper have found, human behavior and rational behavior often have little to do with each other. So how does this knowledge affect our lives? There are multiple steps that we can take as a society to rid ourselves of the idea of perfect rationality. By making these efforts, we can make systems work better, and appreciate the wonders, and limitations of our mind.

As previously stated, there are three groups that can benefit from learning that *homo economicus* and *homo sapiens* are quite dissimilar: policy makers, communicators and the average consumer of information. Each group can take action to approach our irrationality in a more thoughtful, effective way.

⁹⁴ Shakespeare, Act V

For policy makers, economic policy should be tempered with the idea that the free market is only as rational and efficient as their actors. If supply and demand are not the only factors that go into determining price, if we are more influenced by memories of past prices, and the artificial coherence that comes with that, that should factor into our fiscal policy. More study into the impacts of these irrational influences on tax policy and free trade. Although economic models describe at length how consumption habits and resource allocation will change when *homo economicus* is faced with changes in market and prices, we need to study how different *homo sapiens* will react to these changes. Rational economics can give us great insight into the way we shape our fiscal policy, but as has been shown in this paper, it may only be an incomplete picture.

Furthermore, when designing electoral systems, it is important to note the minor environmental cues that can make use of our heuristics. If we truly want elections to be fair and unbiased, we should examine the documented effects that a polling place can have on our voting decision. We should recognize that what drives us to select a candidate is much more complicated than charts and graphs can illustrate. The Downsian model fails to take into account the variety of emotional influences that hold sway over our votes and should be updated to give a better view of political actions.

Also, we need to examine the idea that arbitrary coherence may come into play in the ballot box. Further research is needed to discover how much our votes are determined by the merits of a candidate or idea and how much is due to whatever emotions had hold of us on our first voting experience.

For professional communicators, the lesson is that these separate irrational influences do not work in isolation. The effects of framing, innumeracy and loss aversion are intertwined, and their relationship should always be taken into account. Saying the same thing two different ways can cause massive shifts in decision making. Communicators should realize that when they are discussing issues involving tradeoffs, a loss adverse public may focus on the negatives and ignore the possibility of greater benefits. Conversely, communicators can dissuade their audiences from taking an action by realizing the salience of potential losses on our collective psyche.

But most importantly for communicators, they can never forget that the most well-crafted message, no matter how much truth can be found within, is worthless if they lose the public's trust. Minor risks can become major scares when credibility is lost, as Japan illustrated at the turn of the century. In some occasions, earning their trust may involve taking steps beyond what is rationally required by the situation. But the risks that can be creating by activating the amygdalas of the populace should not and cannot be overlooked. Political communicators in particular should recognize that they are already working at a disadvantage in this area, as issues of trust towards both parties seem to have eroded credibility on even the simplest issues and questions.

Finally, the average citizen can take one simple yet immensely effective step to combat the problems that arise from irrationality: think. Neuroscience tells us that the first reaction of our brain when faced with a threat is to cloud our judgment with vestigial emotions and hormones. Even when our amygdalas do not throw us into an irrational panic, our brain is designed to take shortcuts and the easy way out. Don't let it.

By realizing the limitations of our brain and the flaws inherent in our thinking, we can work around our irrationality. When we hear statistics being thrown around in debates, we can ask ourselves “Do I understand the absolute AND relative difference here? Is it really something I should care about?” When trying to weigh tradeoffs, try to ask yourself “Am I doing what will lead to the best result for me, or am I just too averse to losing something that I’m giving up potential gains?” When we look at an issue, try examining it from another perspective. Put yourself in the other side’s shoes, to make sure that your initial reaction isn’t just a result of framing bias. When you find yourself falling into a habit, question where that habit came from, and whether or not you’ve been self-herding way longer than it makes sense to.

Above all, regardless of the questions you ask, always question yourself. Realize that from newborn infants to heads of state, we are all prone to the irrationality inherent in being human. No matter how obvious an answer seems to you, taking your conclusions with a grain of salt couldn’t hurt. Our minds are wondrous things, able to process information at an astonishing rate and allowing us to unquestionably become the dominant species on this planet. But by not letting these major accomplishments of the brain blind us to its failings, we can look at ourselves in a new, more honest light.

Conclusion

People are irrational, but that doesn’t mean that they are stupid. We have thought long and hard about what we believe to be the desired life, what counts as “beneficial” in our eyes, what we treasure. Far be it from this paper to suggest that one definition of costs and benefits is superior to any other. What this paper is saying is that all of us can fall prey to irrationality. It doesn’t matter how one conceptualizes utility, it doesn’t what your end goal is or what value

systems you use to judge an issue. Regardless of what your goal is, totally irrelevant information can be brought in and misprocessed, distracting you from your desired results.

Economic rationality is faulty at every level. Utility, however an individual defines it, is anything but fixed. The expectations of the value given by an option fluctuate based on transient characteristics of the environment. Even our own conceptualization of utility is open for reinterpretation depending on situations. But even if we did have a well-defined set of preferences, our brains simply do not have the ability to process every choice in a rational manner without draining the body of its energy reserves. Our rational minds are forever linked to the erratic emotional influences endemic to human life.

This paper is not meant to disparage humanity and our thought processes. Rather, it celebrates them. For all its failings our minds are beautiful things. But they are what they are. Irrationality is not in and of itself good or bad. The fact that we are not cold calculating machines may lead us to make mistakes, but it also makes us more human. It leads to great folly, but also great compassion.

However the idea of irrationality makes you feel, it's here to stay. After surviving, and thriving, through millions of years of evolution, irrational impulses are a part of who we are. Understanding that fact can lead us to create better systems, better policies and better lives. That's the rational way to approach our irrationality.

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