

**“LEGALNOMICS”**  
**LESSONS FROM THE FIELD OF BEHAVIORAL ECONOMICS**  
**ABOUT PERCEPTION AND DECISION-MAKING FOR TRIAL LAWYERS**

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When I first started practicing law in 1994, the art of trial advocacy embraced the concept of storytelling as a central way of communicating the plaintiff’s cause to the jury. The convention, at that time, was to paint the plaintiff as the protagonist in his or her own life’s story. The jury would be sympathetic to his or her plight, and write a happy ending.

Very early on in my practice, however, the point-of-view started to change. In our tobacco cases, specifically, it became important (at least in our mind) to tell the story around the choices that the tobacco companies made. While this reversal, at first, seemed litigation-specific, I started to see lawyers change the point-of-view in construction defect, medical malpractice and other types of cases. More and more, the story started to be told around the defendant, as antagonist, so that the jury would focus on its bad choices, rather than second-guessing the plaintiff.

This shift corresponded with a concerted effort by trial lawyers to better understand jurors, and the pre-conceived notions that they were bringing with them into the jury box to decide cases. David Wenner and Greg Cusimano went out and conducted focus groups all over the country to gain information about the public’s attitudes and beliefs surrounding plaintiffs and their cases. To the empirical information that they collected, Wenner, Cusimano, and others applied lessons from the cognitive sciences about how people make decisions in developing the *Overcoming Jury Bias* speeches, writings, programs and other techniques in approaching plaintiff trial work. These approaches have evolved over the past twenty years into related frameworks, such as Friedman and Malone’s *Rules of the Road*, David Ball’s “*Reptile*”, and Mark Mandell’s *Case Framing and Choice Theory*.<sup>1</sup>

As this evolution has occurred in the art of trial practice, a similar revolution has started to occur in the field of economics, where insights into decision-making from the fields of psychology, neuroscience and other cognitive studies have challenged the premises upon which neoclassical economic thinking had largely been based. With the publication of *Thinking Fast and Slow* by Daniel Kahneman, (a psychologist by profession who won the Nobel Prize in Economics for his work with another leading psychologist Amos Tversky), as well as Richard Thaler’s *Nudge*, Dan Ariely’s *Predictably Irrational*, and lighter, more popular works such as *Freakonomics* and Malcolm Gladwell’s *Blink*, the field of Behavioral Economics has entered the mainstream.

This paper is intended to review some of the major theories and findings of these cognitive scientists, so that their insights and information can be better understood and incorporated into the day-to-day practice of law, from case-preparation and discovery, to settlement negotiation, to jury selection and trial – as well as their potential implications on policy issues, such as tort reform.

### **What is Behavioral Economics?**

Much traditional economic theory is premised on the assumption that human beings are rational economic actors, who always try to maximize their own interests. This results in efficient markets, which optimize utility.

“To a psychologist,” however, “it is self-evident that people are neither fully rational nor completely selfish, and their tastes are anything but stable.”<sup>2</sup>

The field of Behavioral Economics, embracing these psychological premises, attempts to understand and predict how human beings actually make economic choices, without assuming anything about their rationality.

In Thayer’s terminology, neoclassical economists study “Econs” under an Expected Utility Theory, which both prescribes the logic under which decisions should be made and also describes how such Econs are presumed to make economic choices. On the other hand, the “Humans” who are studied by behavioral economists focus on intuitive choices, which are immediately tempting, and often lead to the ultimate decisions that economic actors make.

### **Heuristics and Cognitive Bias: A Background**

In 1979, Kahneman and Twersky published the seminal “Prospect Theory: An Analysis of Decision Under Risk”<sup>3</sup> which posits that that people make decisions based on the potential value of losses and gains (rather than the final outcome), and that people evaluate these losses and gains using certain “heuristics”.

Heuristics are mental shortcuts that generally involve focusing on one aspect of a complex problem, and ignoring others. These shortcuts work well under most circumstances, but can lead to deviations (and, in many cases, systematic and predictable deviations) from the rules of logic, probability and rational choice theory. These are called “cognitive biases”.

Some of the more notable biases are:

- **Availability.** People tend to estimate the likelihood or frequency of an event based on how easily it comes to mind.
- **Confirmation.** People tend to seek, interpret and accept new information in a way that confirms his or her existing beliefs.

- **Representative.** People tend to place individuals into categories, and assume that they share the characteristics of a prototype of that category.
- **Halo Effect.** People tend to like (or dislike) everything about another person, even with respect to characteristics that have not been observed.
- **Fundamental Attribution Error.** People tend to place more significance on the individual characteristics of another (*e.g.* smart, stupid, reckless, brave) than the surrounding circumstances (*e.g.* time, physics, weather) in explaining behavior and outcome.
- **Hindsight Bias.** People tend to view past events as having been predictable.
- **Outcome Bias.** People tend to judge a decision based on the ultimate outcome, as opposed to the quality of the decision at the time it was made.

Several of these cognitive pre-dispositions likely stem from evolutionary advantages, including particularly the general advantage in assuming that observable events have specific and meaningful *causes*, (as opposed to simply the random and inexplicable product of hap, coincidence or circumstance). When, for example, our ancestors were out on the plains and observed a rustle in the leaves, it was likely better to assume that the rustle was being caused by a lion, as it is better to avoid an illusory predator than to be eaten by an actual one.\*

Prospect Theory highlights the “**Loss Aversion Bias**” under which people generally value the avoidance of loss over the acquiring of gains.

## **The Biology of Thinking**

What you think and do generally originates in what Kahneman calls “System 1” – a quick, automated, and largely involuntary response to environmental stimuli, which requires little or no mental effort and virtually no biological stress. When things get difficult, what Kahneman calls “System 2” starts to take over. Heart rate increases, pupils dilate, muscles tighten. This system is invoked as necessary to perform complex calculations, and is associated with agency, choice and concentration.

The division of labor between the two systems is highly efficient, attempting to conserve effort while optimizing performance.

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\* Some, in fact, believe that we are evolutionarily pre-disposed in this way towards religion and belief in God.

“System 1 is generally very good at what it does: its models of familiar situations are accurate, its short-term predictions are usually accurate, and its initial reactions to challenges are swift and generally appropriate. System 1 has biases, however, systematic errors that it is prone to make in specified circumstances. It sometimes answers easier questions than the one it was asked, and it has little understanding of logic and statistics.”<sup>4</sup>

System 1 is always active. “If you are shown a word on the screen in a language you know, you will read it – unless your attention is totally focused elsewhere.”<sup>5</sup>

## **Intuitive Thinking**

In the best-seller *Blink*, Malcolm Gladwell shows how intuitive thinking can, under some circumstances, be more helpful than active, reflective thinking. As he puts it:

We really only trust conscious decision making. But there are moments, particularly in times of stress, when haste does not make waste, when our snap judgments and first impressions can offer a much better means of making sense of the world. The first task of *Blink* is to convince you of a simple fact: decisions made very quickly can be every bit as good as decisions made cautiously and deliberately.<sup>6</sup>

Many different professions, he notes, have a term to describe the ability to read deeply into the narrowest slivers of experience. In basketball, it is called “court sense”. In the military, it is called “coup d’oeil”. Orthonologists are able to recognize birds from their “giss” in brief flight.<sup>7</sup>

When people are asked to pick a stranger whom they have recently encountered out of a line-up, they can generally do it. But if people are asked to write down in as much detail as possible what the stranger looks like, they will then do a lot worse. “The act of describing a face has the effect of impairing your otherwise effortless ability to subsequently recognize that face.”<sup>8</sup> †

The Cook County Emergency Room was significantly burdened with the time and money it devoted to patients concerned that they were having heart attacks, but really weren’t. The Director of Medicine consulted the work of a cardiologist who had partnered with mathematicians to develop a statistical algorithm that would determine whether someone was suffering from a heart attack. The algorithm was 70% more effective than physicians in weeding out patients who were not suffering from heart attacks; and was also more accurate in identifying those patients who were suffering one.<sup>9</sup> “The extra information is more than useless” Gladwell

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† This is the result of “verbal overshadowing” which occurs when the left brain, which thinks in words, displaces the right brain, which thinks in pictures. When you are asked to describe a face, you are drawing on your memory of what you *said* the stranger looked like, instead of your memory of what you *saw* the stranger looked like. When it comes to faces, we are a lot better at visual recognition than verbal description. You can probably, for example, picture either Albert Einstein or Marilyn Monroe almost perfectly in your mind; but how accurately could you describe them? If you wrote a paragraph description, would anyone be able to read the description and guess who it was? – Gladwell, *Blink*, pp.119-120.

says. "It's harmful. What screws up doctors when they are trying to predict heart attacks is that they take *too much* information into account."<sup>10</sup>

In many cases, however, the intuitive 'System 1' response will lead to errors (often predictable errors) if 'System 2' is not invoked to think things thru more carefully. For example:

A bat and a ball cost \$1.10.  
The bat costs one dollar more than the ball.  
How much does the ball cost?

The intuitive answer is 10 cents. The actual answer is 5 cents. More than 50% of students at Harvard, Princeton and MIT gave the wrong answer. More than 80% of students at less selective universities. The person who gave the intuitive answer: (i) did not actively check whether the answer was correct, (or, stated another way: his or her 'System 2' endorsed an intuitive response that it could have rejected with a small investment); and (ii) apparently failed to stop and ask himself or herself why someone would have posed such a seemingly obvious question.<sup>11</sup>

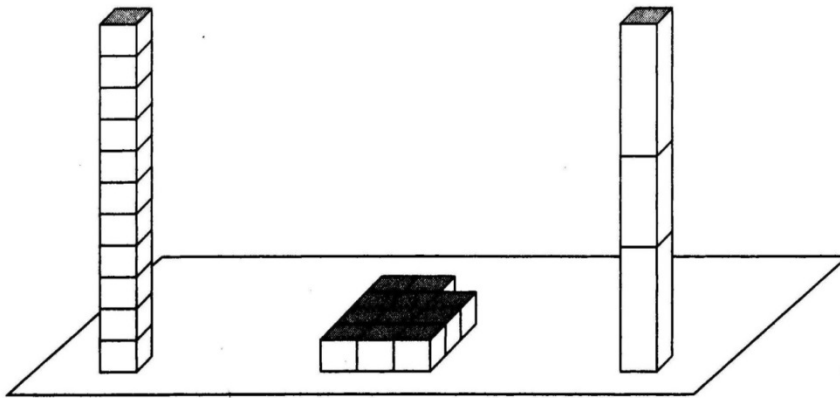


Figure 7

People will not immediately recognize that the number of blocks in the left-hand tower (above) is the number of blocks spread out on the floor. People would generally need to count the two sets of blocks and compare the results.<sup>12</sup>

On the other hand:

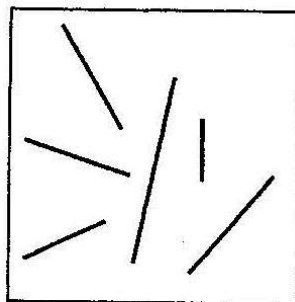


Figure 8

Experiments have shown that a fraction of a second is sufficient for most people to decipher the average length of a group of lines fairly accurately.<sup>13</sup> The question ‘What is the total length of the lines?’ is a different question. The only way to answer that question is to activate ‘System 2’, which will generally endeavor to estimate the average, count the lines, and multiply the average length by the number of lines.

VOTE — NOTE  
VOTE — GOAT

People are distinctly slower to recognize these words as rhyming if their spelling was discrepant. Even where the instructions required only a comparison of sounds, the participants also compared their spelling, and the mismatch on the irrelevant dimension slowed them down.<sup>14</sup>

Some roads are snakes.  
Some jobs are snakes.  
Some jobs are jails.

All three sentences are literally false. But the second sentence is more obviously false than the other two; and the reaction time is materially slower. (The two less difficult sentences can be metaphorically true.)<sup>15</sup>

Whether you state them or not, you often have answers to questions that you do not completely understand, relying on evidence that you can neither explain nor defend.<sup>16</sup>

The columns below illustrate how a narrow shortcut heuristic question replaces the actual (generally more complex) question that is asked.<sup>17</sup>

Target Question	Heuristic Question
How much would you contribute to save an endangered species?	How much emotion do I feel when I think of dying dolphins?
How happy are you with your life these days?	What is my mood right now?
How popular will the president be in six months?	How popular is the president right now?
How should financial advisers who prey on the elderly be punished?	How much anger do I feel when I think of financial predators?
This woman running for the primary. How far will she go in politics?	Does this woman look like a political winner?

When called upon to make determinations about the probability of potential future events, people generally judge something else, believing they have determined probability. People often don’t realize that the actual question was difficult, because an intuitive answer to the heuristic question came readily to mind.<sup>18</sup>

In general, the characteristics of ‘System 1’ can be summarized as follows:

- Generates impressions, feelings, and inclinations, (which, when endorsed by ‘System 2’, become beliefs, attitudes, and intentions);
- Creates a coherent pattern of activated ideas in associative memory;
- Links a sense of cognitive ease to illusions of truth, pleasant feelings, and reduced vigilance;
- Infers and invents causes and intentions;
- Neglects ambiguity and suppresses doubt;
- Is biased to believe and confirm;
- Exaggerates emotional consistency (the “halo effect”);
- Focuses on existing evidence and ignores absent evidence (“What-You-See-Is-All-There-Is” (WYSIATI));
- Computes more than intended (“mental shotgun”);
- Sometimes substitutes an easier question for a difficult one (“heuristics”);
- Is more sensitive to changes than to states (“Prospect Theory”);
- Overweighs low probabilities;
- Responds more strongly to losses than to gains (“loss aversion”); and
- Frames decision problems narrowly, in isolation from one another.<sup>19</sup>

### **Primacy and Anchoring: Affecting the Acceptance, Understanding and Use of Information**

The terms “primacy” and “anchoring” have been used by trial lawyers, psychologists and behavioral economists in somewhat different but related and overlapping ways.

Trial lawyers have frequently spoken of “primacy” (and “recency”) in the context of jurors remembering best what they heard first (and last), and the plaintiff’s advantage in going first (and last) at trial. Plaintiff lawyers have also sometimes referred to “anchors” as visual cues (*e.g.* a handkerchief) that can be associated with some topic, or event, or commentary (*e.g.* the witness is lying).

At the same time, cognitive scientists (and some trial lawyers) also speak of “priming” someone with “anchors” to accept or process information in a certain way. Because of the Confirmation Bias in particular, once a story, or a belief, or a number, takes root, the economic actor, or juror, will be much more likely to accept consistent information, to ignore or reject inconsistent information, and to process new information in relation to the pre-existing anchor, story, number, or other belief.

Therefore, by sequencing and otherwise framing the information that is presented, we can shape the effects that such information is likely to have upon the audience’s decision-making.

Allan: intelligent—industrious—impulsive—critical—stubborn—envious

Ben: envious—stubborn—critical—impulsive—industrious—intelligent

Each boy is described by the exact same six adjectives, but most people will view Allan more favorably than Ben.<sup>20</sup>

In one experiment, a Wheel-of-Fortune was rigged so that it would stop at only either 10 or 65. The subjects were then asked two questions:

Is the percentage of African nations among UN members larger or smaller than the number you just wrote?

What is your best guess of the percentage of African nations in the UN?

In response to the second question, the average estimates of those who saw 10 and 65 were 25% and 45%, respectively.<sup>21</sup>

An anchoring effect occurs in this way when people are presented with a value before estimating either that same or some other quantity.

Research on anchors and priming demonstrates a phenomenon known as “Arbitrary Coherence”. Prices, for example, are initially arbitrary. But once those prices are formed within someone’s mind, they will shape future prices, (*i.e.* with coherence).

In one experiment, students were asked to place the last two digits of their Social Security Numbers next to an assortment of items in the form of a price. (If, therefore, for example, your Social Security Number ended in a 23, the price would be \$23.) The students, for each item, were then asked to state whether they would be willing to purchase the item for that price, and then to state the most amount of money they would be willing to pay for the item. The results first showed a high correlation between the last two digits of the Social Security Numbers and the prices that the students were willing to pay for the items. In particular, the students in the top 20% placed bids that were 216-346% higher than those in the bottom 20%. (Or, stated another way, the last two digits of the Social Security Numbers had served as an effective “anchor” to the prices that the participants were willing to pay.) Secondly, there was a coherence to the pricing within categories of items. Students were, for example, willing to pay more for a keyboard than a trackball, and more for a bottle of wine that had received a higher rating from *Wine Spectator*



magazine. “The significance of this is that once the participants were willing to pay a certain price for one product, their willingness to pay for other items in the same product category was judged relative to the first price (the anchor).”<sup>22</sup>

In another experiment, participants were exposed to a very unpleasant sound. One group was offered 10 cents to hear the sound again, and the other group was offered 90 cents. On the next round, the participants from both groups were asked to name the lowest payment they would accept to hear the sound again. The first group demanded an average of only 33 cents, while the second group demanded over twice that much (73 cents).<sup>23</sup> Then the researchers introduced new anchors. But the participants who had first encountered the 10-cent anchor continued to accept lower prices than those who had first encountered the 90-cent anchor, regardless of the additional anchors that followed. “What did that show? That our first decisions resonate over a long sequence of decisions. First impressions are important, whether they involve remembering that our first DVD player cost much more than such players cost today (and realizing that, in comparison, the current prices are a steal) or remembering that gas was once a dollar a gallon, which makes every trip to the gas station a painful experience. In all these cases the random, and not so random, anchors that we encountered along the way and were swayed by remain with us long after the initial decision itself.”<sup>24</sup> ‡

Anchoring effects also explain why, for example, rationing is an effective marketing ploy. A few years ago, supermarket shoppers in Sioux City, Iowa, encountered a sales promotion for Campbell’s soup 10% off the regular price. On some days, a sign on the shelf said LIMIT OF 12 PER PERSON. On other days, the sign said NO LIMIT PER PERSON. Shoppers purchased an average of 7 cans when the limit was in force, but only 3-4 when there was no limit. (Anchoring is not the sole explanation. Rationing also implies that the goods are flying off the shelves, and shoppers should feel some urgency about stocking up.)<sup>25</sup>

Initial offers or demands are frequently intended to serve as anchors to the rest of the negotiations. Kahneman suggest that, in response to an outrageous proposal, negotiators not come back with an equally outrageous counter-offer, (as it will frequently create a gap that will be difficult for the parties to bridge). Rather, he suggests, you cut off (or at least threaten to cut off) the negotiations. Other psychologists, he notes, have instructed negotiators to focus their attention and search their memory for arguments against the anchor (activating ‘System 2’); under this theory, the anchoring effect is eliminated (or at least reduced) when attention is actively focused on the minimal offer that the opponent would accept, or on the costs to the opponent of failing to reach an agreement – *i.e.* “thinking the opposite” as a defense against the anchoring effects.<sup>26</sup>

In another study, students were asked:

How many dates did you have last month?

How happy are you these days?

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‡ “We should pay particular attention to the first decision we make in what is going to be a long stream of decisions (about clothing, food, etc). When we face such a decision, it might seem to us that this is just one decision, without large consequences; but in fact the power of the first decision can have such a long-lasting effect that it will percolate into our future decisions for years to come. Given this effect, the first decision is crucial, and we should give it an appropriate amount of attention.” – Ariely, *Predictably Irrational*, p.46.

In this sequence, the correlation between the number of dates and reported happiness was very high. In the abstract, an answer to the second question would have required a fair amount of consideration. However, the students who had just been asked about their dating did not need to think hard about it because they already had an answer to a related question (*i.e.* how happy they were with their love life). They substituted the question to which they had a ready-made answer for the actual question they were asked. The students, of course, would understand that the two questions are not synonymous. If asked, they would explain that the concepts are different. But they were not asked about whether the concepts are different. They were asked how happy they were, and ‘System 1’ already had an answer.<sup>27</sup>

Individuals can also be primed to experience things in different ways based on their expectations.

For example: Josephine’s Catering boasts about its “delicious Asian-style ginger chicken” and its “flavorful Greek salad with Kalamata olives and feta cheese.” Culinary Sensations offers a “succulent organic breast of chicken roasted to perfection and drizzled with a Merlot demi-glace, resting in a bed of herbed Israeli couscous” and a “mélange of the freshest roma cherry tomatoes and crisp field greens, paired with a warm circle of chevre in a fruity raspberry vinaigrette.” Although there is no way to know whether Culinary Sensations’ food is any better than Josephine’s, the sheer depth of the description may lead us to expect greater things. This, accordingly, may affect the way that we experience the meal, and increases the chance that we will rave over it.<sup>28</sup>

The placebo effect, similarly, may be influenced by price. In one study, almost all of the participants believed that a Vitamin C pill advertised as pain reliever “Veladone” reduced the pain they experienced from an electric shock. However, when the \$2.50 Veladone pill was marked down to just \$0.10, only half of them experienced relief.<sup>29</sup>

In another famous experiment, psychologist John Bargh developed a test based on the following phrases:

from are Florida oranges temperature  
ball the throw toss silently  
shoes give replace old the  
he observes occasionally people watches  
be will sweat lonely they  
sky the seamless gray is  
should now withdraw forgetful we  
us bingo sing play let  
sunlight makes temperature wrinkle raisins

What seemed like a language test was really a test on the priming effect, if any, upon behavior. Indeed, after taking the test, people walked out of the room more slowly than they had walked in. The words were not only associated with old age, but had primed the adaptive unconscious to act older.<sup>30</sup>

David Stenbill, Monica Bigoutski, Shana Tirana.

These names are made up. If you encounter them within the next few minutes, you are likely to remember where you saw them. If, however, a few days from now, you are shown a long list of names, including some minor celebrities along with these new names, there is a substantial probability that you would identify David Stenbill as a well-known person, although you wouldn't know whether he was an actor, an athlete, or a politician.<sup>31</sup>

In some cases, Gladwell observes, we simply have no way of explaining our feelings about something. For example, we know unconsciously what good jam is; but we don't have any way of explaining our feelings about jam. When presented with a list of terms, those ideas become planted, and start to affect the way in which we describe what we think, which, in turn, begins to affect what we feel. "What happens is that we come up with a plausible-sounding reason for why we might like or dislike something, and then we adjust our true preference to be in line with that plausible-sounding reason."<sup>32</sup>

### **Choice Theory**

Most people don't know what they want unless they see it in context.<sup>33</sup>

In one study, students were offered:

On-Line Subscription \$59.00  
Print Subscription \$125.00  
Print & On-Line Subscription \$125.00

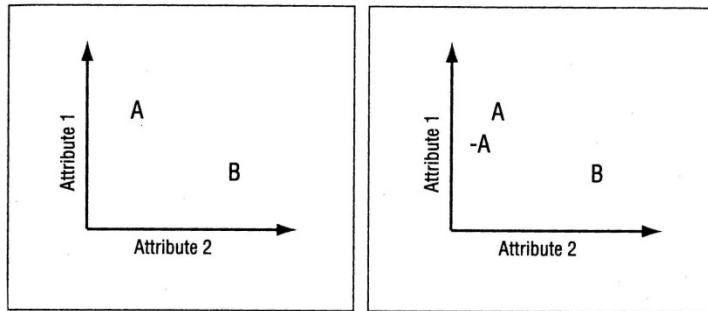
Relative to the Print-only option, the Print & On-Line option looks clearly superior. And when posed to 100 MIT MBA students:

16 Students chose On-Line Subscription \$59.00  
Zero Students chose Print Subscription \$125.00  
84 Students chose Print & On-Line Subscription \$125.00

However, if you eliminate the Print-only option (*i.e.* the "decoy"):

68 Students chose On-Line Subscription \$59.00  
32 Students chose Print & On-Line Subscription \$125.00<sup>34</sup>

To better understand how relativity works, consider the following illustration:



People might have a difficult time comparing A to B. Introducing the “decoy” (-A) creates a simple comparison with A, and therefore makes A look better, not only relative to -A, but overall. Hence, the inclusion of -A makes people more likely to select A over B.<sup>35</sup>

An electronics store is selling:

- 36-inch Panasonic for \$690
- 42-inch Toshiba for \$850
- 50-inch Philips for \$1,480

It will generally be difficult to compare the value of these different options. Who really knows if the Panasonic at \$690 is a better deal than the Phillips at \$1,480? But given three choices, most people will choose what’s in the middle. (The 42-inch Toshiba is probably the one the store wants to sell.)<sup>36</sup>

In this way, high-priced entrees on a menu boost revenue, even if no one orders them. Although people generally won’t buy the most expensive dish, they will order the second most expensive one.<sup>37</sup>

Someone needs to buy a new suit and a new pen. He or she finds a pen for \$25, but remembers that the same pen is on sale for \$18 at a different store 15 minutes away. Most people would spend the 15 minutes in order to save \$7. However, when they go to buy the suit, if they find what they want for \$455, but discover that they can get the same suit at another store 15 minutes away for \$448, most people would not travel the same 15 minutes for the same \$7 in savings. This is why “we find it easy to spend \$3,000 to upgrade to leather seats when we buy a new \$25,000 car, but difficult to spend the same amount on a new leather sofa, (even though we know we will spend more time at home on the sofa than in the car).”<sup>38</sup>

There are generally two ways of construing two sets of decisions:

- Narrow Framing: a sequence of two simple decisions, considered separately
- Broad Framing: a single comprehensive decision, with four options considered together

While 'System 1' tends to frame narrowly, in isolation, broad framing will be superior (or at least as good) when several decisions are to be contemplated together.<sup>39</sup>

In one study, they looked at what punitive damages would-be jurors would award in two different cases:

Case 1: A child suffered moderate burns when his pajamas caught fire as he was playing with matches. The firm that produced the pajamas had not made them adequately fire resistant.

Case 2: The unscrupulous dealings of a bank caused another bank a loss of \$10 million.

When evaluated separately, the jurors awarded higher punitive damages to the defrauded bank than to the burned child, presumably because the size of the financial loss provided a high anchor. When the cases were considered together, however, the jurors raised the award to the child so that it was higher than the bank's award. Overall, awards to personal injury victims were more than twice as large in joint than in single evaluation.<sup>40</sup>

### **Loss Aversion Bias**

Loss aversion bias exists because we are generally driven more strongly to avoid losses than to achieve gains.<sup>41</sup> For most people, the fear of losing \$100 is more intense than the hope of gaining \$150. People are generally loss averse.

You can measure the extent of your aversion to losses by asking yourself a question: What is the smallest gain that I need to balance an equal chance to lose \$100? For many people the answer is around \$200, twice as much as the loss. The "Loss Aversion Ratio" has been estimated in several experiments to fall somewhere in the 1.5-2.5 range.<sup>42</sup>

In general, someone's loss aversion coefficient tends to increase when the stakes rise, but not dramatically. When, however, the possible loss is potentially ruinous, or if the person's lifestyle is threatened, the loss aversion coefficient becomes very large and in many cases infinite. There are some risks that people will not accept, regardless of how many millions they might stand to win.<sup>43</sup>

At the same time, playing a very favorable but risky gamble multiple times reduces the subjective risk. Paul Samuelson, for example, once asked a friend whether he would accept a gamble on the toss of a coin in which he could lose \$100 or win \$200. His friend declined, "because I would feel the \$100 loss more than the \$200 gain. But I'll take you on if you promise

to let me make 100 such bets.”<sup>44</sup> Experienced traders in financial markets often use this type of ‘broad framing’ to shield themselves from the pain of individual losses.<sup>§</sup>

Because something that is “free” at least superficially entails no risk of loss, the notion of something FREE! is unusually attractive. In some cases, taking something for free involves no downside, and makes perfect sense. “The critical issue arises when FREE! becomes a struggle between a free item and another item – a struggle in which the presence of FREE! leads us to make a bad decision.”<sup>45</sup> In one experiment, for example, people were given the choice to buy a Lundt Truffle for 15 cents, or a Hershey’s Kiss for one cent. 73% chose the Truffle, while 27% chose the Kiss. In the next round, the cost of each was reduced by one cent, so that the Truffles were offered for 14 cents, or a Hershey Kiss for free. Although the difference in price remained the same, (14 cents), 69% of the participants elected the Hershey Kiss, while only 31% opted for the Truffle.<sup>46</sup>

Most people in Boston shopping malls took a free \$10 gift certificate, rather than paying \$7 to get a \$20 gift certificate. When the cost of each certificate was increased by \$1, most people opted for the \$20 gift certificate (at an \$8.00 cost), rather than the \$10 gift certificate (at \$1.00).<sup>47</sup>

“Most transactions have an upside and a downside, but when something is FREE! we forget the downside. FREE! gives us such an emotional charge that we perceive what is being offered is immensely more valuable than it really is. Why? Because humans are intrinsically afraid of loss.”<sup>48</sup>

### **The Endowment Effect**

A cousin to the Loss Aversion Bias is the Endowment Effect, which posits that people generally ascribe more value to things that they own. They will tend to pay more to retain something they own than to obtain something new – even where there is no cause for attachment, and even when the item was only obtained minutes beforehand.

In one study, participants were given a mug and then offered the chance to sell it or trade it for an equally priced alternative good (pens). The researchers found that the willingness to accept compensation for the mug, once the participants’ ownership of the mug had been established, was approximately twice as high as their willingness to pay for it.

In another study, the hypothetical selling price for NCAA Final Four tournament tickets was 14 times higher than the hypothetical buying price for those same tickets.<sup>49</sup>

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<sup>§</sup> “The combination of loss aversion and narrow framing is a costly curse. Individual investors can avoid that curse, achieving the emotional benefits of broad framing by reducing the frequency with which they check how well their investments are doing.... In addition to improving the emotional quality of life, the deliberate avoidance of exposure to short-term outcomes improves the quality of both decisions and outcomes. The typical short-term reaction to bad news is increased loss aversion. Investors who get aggregated feedback less often are likely to be less risk averse and to end up richer.” – *Thinking Fast and Slow*, pp.339-340.

Other research has concluded that employees will work harder to maintain a provisional bonus than they would to obtain a bonus framed as a potential yet-to-be-awarded gain.<sup>50</sup>

## **Improbability Principles**

In *The Improbability Principle*,<sup>51</sup> mathematician David Hand explains why coincidences, miracles and rare events happen every day, which he attributes to several key factors, some of which are purely statistical, and others which are based on human perception:

**The Law of Inevitability.** Something must happen.

**The Law of Truly Large Numbers.** Given enough opportunities, even very outrageous things are likely to happen.\*\*

**The Law of Selection.** People tend to “paint targets after the arrows have hit.”††

**The Law of the Probability Lever.** Even a tiny change in a variable can have a big impact on the probability of the event.‡‡

**The Law of Near Enough.** Things that are sufficiently similar are treated as if they are identical.

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\*\* The Law of *Truly* Large Numbers is different from “The Law of Large Numbers” which dictates that the averages of large samples fluctuate less than the averages of small samples.

†† Referencing, among other things, an anecdote related by Kahneman regarding the performance of pilots-in-training after receiving positive or negative enforcement from flight instructors, Hand discusses, among other things, Regression to the Mean: in judging the effectiveness of certain measures, people – who are always looking for causal explanations – tend to underestimate the fact that, statistically, very positive and very negative results will sometimes occur simply by virtue of luck (and then will migrate back towards the mean). Hand also discusses the Selection Bias in science, where the researcher decides the hypothesis after the experiment has been conducted and the data has been collected; a Publication Bias, under which scientific journals tend to publish studies which demonstrate a phenomenon over those which fail to demonstrate the phenomenon; the Drop-Out Bias, in the context of clinical trials, which skews the results because of attrition; as well as Length-Time Bias, under which the results are sometimes distorted where the probability of selection depends on the length of time. – Hand, *Improbability Principle*, pp.128-139.

‡‡ “In mechanics, the law of the lever describes how objects of different weights balance on a beam – like two people on a see-saw. A lighter person sitting far from the balance point can counterbalance a heavier person sitting close to the balance point. If the heavier person moves slightly father out, or if his weight is slightly increased, then the beam tips, and the lighter person shoots skyward. In a similar was, the law of *probability* lever tells us that change in circumstances can have a huge impact on probabilities. The shift can transform tiny probabilities into massive ones.” – Hand, *Improbability Principle*, p.142.

## **Framing Risks**

Different ways of presenting the same information often evoke different emotions. The statement that “the odds of survival one month after surgery are 90%” is more reassuring than the equivalent statement that “mortality within one month of surgery is 10%”.<sup>52</sup>

Moreover, rich and vivid representation of the outcome, whether or not it is emotional, reduces the role of probability in the evaluation of an uncertain prospect.

Where “a vaccine that protects children from a fatal disease carries a 0.001% risk of permanent disability,” the risk appears small. But where “one of 100,000 vaccinated children will be permanently disabled,” it calls up the image of an individual child who is permanently disabled by a vaccine, (while the 99,999 safely vaccinated children have faded into the background).<sup>53</sup>

Similarly, people who saw information about “a disease that kills 1,286 people out of every 10,000” judged it as more dangerous than people who were told about “a disease that kills 24.14% of the population.”<sup>54</sup>

## **Presentation**

The natural limit on human “channel capacity” seems to be around seven. If dots are flashed very quickly and then people are asked how many they see, they would generally be accurate up to around seven, and then they would need to guess. If someone were asked to sort 20 glasses of iced tea with varying levels of sugar by sweetness, people would generally be able to sort them into six or seven categories, before starting to make mistakes. This is the reason that telephone numbers have seven digits.<sup>55</sup>

A message, unless it is immediately rejected as a lie, will have the same effect on the associative system regardless of its reliability.<sup>56</sup>

At the same time, Gladwell believes that “stickiness” is required for a message to have an impact.<sup>58</sup>

In one study, researchers attempted to see what would be the most effective way to encourage college students to get tetanus shots. Some students got “high fear” booklets, while others got “low fear” booklets. On questionnaires, all students understood the dangers of tetanus, and the ones who got the “high fear” booklet were more convinced of the dangers, more convinced of the importance of the shots, and were more likely to say that they intended to be inoculated. But when it came to actually getting the shots, the “high fear” booklet subset was no more likely to get the shot than the “low fear” booklet subset. Rather, “what really worked was giving them a map they didn’t need directing them to a clinic that they already knew existed.”<sup>57</sup>

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<sup>55</sup> One example high-lighted by Gladwell: “Winston tastes good, like a cigarette should.”



“We all want to believe that the key to making an impact on someone lies with the inherent quality of the ideas we present” says Gladwell. “But in none of these cases did anyone substantially alter the content of what they were saying. Instead, they tipped the message by tinkering, at the margin, with the presentation of their ideas.”<sup>58</sup>

Again, rich and vivid representation of the outcome, whether or not it is emotional, reduces the role of probability in the evaluation of an uncertain prospect. Also, the addition of irrelevant but vivid details to a monetary outcome similarly skews the calculation.

Urn A contains 10 marbles, of which 1 is red.

Urn B contains 100 marbles, of which 8 are red.

The chances of winning are 10% in urn A and 8% in urn B, so making the right choice should be easy, but it is not: about 30%-40% of students choose the urn with the larger number of winning marbles, rather than the urn that provides a better chance of winning.<sup>59</sup> If your attention is drawn to the winning marbles, you do not assess the number of non-winning marbles with the same care. (Vivid imagery contributes to denominator neglect.) The distinctive vividness of the winning marbles increases the decision weight of that event. If I have a 90% chance of winning a prize, the event of not winning will be more salient if 10 of 100 marbles are “losers” than if 1 of 10 marbles yields the same outcome.

In a study of would-be juror awards to the victim of a crime, the plaintiff was awarded much more if he was shot in a store that he rarely visited. Poignancy (a close cousin of regret) is a counter-factual feeling, which is evoked because the thought “if only he had shopped at his regular store...” comes readily to mind.<sup>60</sup>

In another experiment, a group of students was asked to pay \$10 for the privilege of attending a poetry reading, while another group was offered \$10 to have to sit through a poetry reading. The first group offered, on average, around a dollar for a short poetry reading, around two dollars for a medium poetry reading, and a little over three dollars for a long poetry reading. The second group, on the other hand, demanded an average of \$1.30 to listen to a short poetry reading, \$2.70 to listen to a medium poetry reading, and \$4.80 to attend a long poetry reading.<sup>61</sup>

Ten common real estate ad terms are:

- Fantastic
- Granite
- Spacious
- State-of-the-Art
- !
- Corian
- Charming
- Maple
- Great Neighborhood
- Gourmet

The terms correlated with a higher sale price are:

- Granite
- State-of-the-Art
- Corian
- Maple
- Gourmet

The terms correlated with a lower sale price are:

- Fantastic
- Spacious
- !
- Charming
- Great Neighborhood

Granite, Corian and maple are specific and therefore helpful. Gourmet and State-of-the-Art imply new, and not in need of repair. Fantastic and Charming, on the other hand, convey that the house does not have specifics that are worth describing. Spacious homes are often not well-kept or impractical. And Great Neighborhood seems to imply that “*this* house isn’t very nice, but others nearby may be.”<sup>62</sup>

All roses are flowers.  
Some flowers fade quickly.  
Therefore some roses fade quickly.

A large majority of college students will support the syllogism as valid. “When people believe a conclusion is true, they are also very likely to believe arguments that appear to support it, even when those arguments are unsound. If ‘System 1’ is involved, the conclusion comes first and the arguments follow next.”<sup>63</sup>

Choose names that are easy to pronounce. Participants in an experiment were asked to evaluate the prospects of fictitious Turkish companies on the basis of reports from two brokerage firms. For each stock, one of the reports came from an easily pronounced name (*i.e.* Artan) and the other came from a firm with a difficult name (*e.g.* Taahhut). The readers gave much more weight to the report from Artan than to the report from Taahhut.<sup>64</sup>

Studies regarding perceptions of intelligence have revealed that people lie about having read classic books to appear smarter. 43% of the people surveyed believe glasses make people look more intelligent. And certain facial features – narrow faces, long noses, and thin chins – were correlated with intelligence.<sup>65</sup>

Writing samples rated more favorably when the author’s name included a middle initial.<sup>66</sup>

A hard-to-read font made the author seem dumber.<sup>67</sup>

Perhaps surprisingly, the use of grandiose vocabulary diminished the participants’ impressions of the author’s cerebral capacity.<sup>68</sup>

In general, along these lines, messages are better delivered with high-quality paper, bright colors, standard fonts, and rhyming or simple language. These tools will not be much help if the message is obviously nonsensical, or if it contradicts facts the audience knows to be true. But in deciding whether a statement is true, people feel a sense of cognitive ease – not only where the statement is strongly linked by logic or association to other beliefs or preferences already held, or comes from a liked or trusted source, but also – from the quality of the font, or the appealing rhythm of the prose; and he or she has no easy way of tracing his or her feelings to their source.<sup>69</sup>

At the same time, however, the following Cognitive Reflection Test was presented to a group of Princeton students:

If it takes 5 machines 5 minutes to make 5 widgets,  
How long would it take 100 machines to make 100 widgets?  
100 minutes OR 5 minutes?

In a lake, there is a patch of lily pads.  
Every day, the patch doubles in size.  
If it takes 48 days for the patch to cover the entire lake,  
How long would it take for the patch to cover half of the lake?  
24 days OR 47 days?

Half of the students saw these puzzles in a small font in washed-out grey print. Surprisingly, 90% of the students who saw the test in normal font made at least one mistake, but only 35% when the font was barely legible.<sup>\*\*\*</sup> The conclusion: “Cognitive strain, whatever its source, mobilizes ‘System 2’, which is more likely to reject the intuitive answer suggested by ‘System 1’.”<sup>70</sup>

#### THE 3-D HEURISTIC

Have a look at the picture of the three men and answer the question that follows.

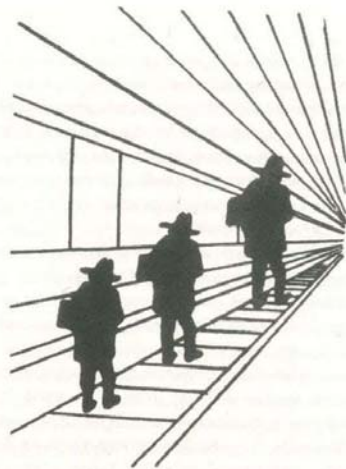


Figure 9

As printed on the page, is the figure on the right larger than the figure on the left?

<sup>\*\*\*</sup> The correct answers are 5 minutes, and 47 days.

The intuitive answer comes quickly to mind: the figure on the right is larger. If you take a ruler to the two figures, however, you will discover that in fact the figures are exactly the same size.<sup>71</sup>

Cold cuts described as “90% fat-free” are more attractive than those which are “10% fat.” Both messages have the same meaning, but an individual normally sees only one formulation of the message, and what he or she sees is all there is.<sup>72</sup>

### **Completing the Story**

It is the consistency of the information that matters for a good story, not its completeness. Indeed, knowing little often makes it easier to fit everything known into a coherent pattern.

What-You-See-Is-All-There-Is facilitates the achievement of coherence, and the cognitive ease that causes people to accept information as true. It explains why people can think fast, and how they are able to make sense of partial information in a complex world. And much of the time, the coherent story we put together is close enough to reality to support reasonable action.

At the same time, it results in overconfidence. Neither the quantity nor the quality of the evidence counts for much in subjective confidence. The confidence that individuals have in the beliefs depends mostly on the quality of the story they can tell about what they see, even if they see very little.<sup>73</sup>

After spending a day exploring beautiful sights in the crowded streets of New York, Jane discovered her wallet was missing.

When people who had read this brief story (along with many others) were given a surprise recall test, the word “pickpocket” was more strongly associated with the story than the word “sights”, even though the latter was actually in the sentence while the former was not.<sup>74</sup>

You meet a woman named Joan at a party and find her personable and easy to talk to. Now her name comes up as someone who could be asked to contribute to a charity. What do you know about Joan’s generosity? The correct answer is that you know virtually nothing. But you like Joan and you will retrieve that feeling of liking her when you think of her. By association, you are predisposed to believe that Joan is generous. And now that you believe she is generous, you probably like Joan even better than you did earlier, because you have now added generosity to her pleasant attributes.

Real evidence of generosity is missing; the gap is filled by a guess that fits one’s emotional response. In other situations, evidence accumulates gradually and the interpretation is shaped by the emotion attached to the first impression.<sup>75</sup>

Mr. Brown almost never picks up hitchhikers. Yesterday he gave a man a ride and was robbed.

Mr. Smith frequently picks up hitchhikers. Yesterday he gave a man a ride and was robbed.

Who of the two will experience greater regret over the episode?

88% of respondents said Mr. Brown, 12% said Mr. Smith. Yet regret is not the same as blame.

Who will be criticized most severely by others?

Mr. Brown 23%, Mr. Smith 77%.<sup>76</sup>

In another experiment, people were asked:

First, list six instances in which you behaved assertively.

Next, evaluate how assertive you are.

According to the sequencing of the experiment, the task of listing instances could enhance the judgment of the trait by two different routes: **(a)** the number of instances retrieved; **(b)** the ease with which they come to mind. In the end, people who had listed twelve instances rated themselves as less assertive than people who had listed only six.<sup>77</sup> This same type of research has produced similar paradoxical results in experiments indicating that people:

- Believe that they use their bicycles less often after recalling many rather than few instances;
- Are less confident in a choice when they are asked to produce more arguments to support it;
- Are less confident that an event was avoidable after listing more ways it could have been avoided;
- Are less impressed by a car after listing many of its advantages.<sup>78</sup>

The Availability Bias also works to affect people's beliefs about probabilities when the events are particularly dramatic, violent, or high-lighted in popular culture and the press. For example:

- Strokes cause almost twice as many deaths as all accidents combined, but 80% of respondents believed accidental death to be more likely.
- Tornadoes were seen as more frequent killers than asthma, although the latter caused 20 times more deaths.
- Death by lightning was judged less likely than death from botulism even though it is 52 times more frequent.

- Death by disease is 18 times more likely as accidental death, but the two were judged about equally likely.
- Death by accidents was judged to be more than 300 times more likely than death by diabetes, but the true ration is 1:4.

The ease with which ideas of various risks come to mind and the emotional reactions to these risks are inextricably linked.<sup>79</sup>

France lost.  
Italy won.

For the purpose of logical reasoning, these two descriptions of the outcome of the 2006 World Cup finals are interchangeable. But they evoke very different associations. “Italy won” evokes thoughts of the Italian team, and what it did to win. “France lost” evokes thoughts of the French team, and what it did to lose. The fact that logically equivalent statements evoke different reactions makes it impossible for Humans to be as reliably rational as Econs.<sup>80</sup>

Some people ignore Base Rates of probability because they believe them to be irrelevant in the presence of individual information. Others make the same mistake because they are not focused on the task.

Another defect of the Representativeness Bias is its insensitivity to the quality of evidence.

In principle, worthless information should not be treated differently from a complete lack of information, but unless you decide immediately to reject evidence, (by, for example, determining that it came from a liar), your ‘System 1’ will automatically process the information available as if it were true.<sup>81</sup>

Linda is thirty-one years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in antinuclear demonstrations.

Linda is a teacher in elementary school  
Linda works in a bookstore and takes yoga classes.  
Linda is active in the feminist movement.  
Linda is a psychiatric social worker.  
Linda is a member of the League of Women Voters.  
Linda is a bank teller.  
Linda is an insurance salesperson.  
Linda is a bank teller and is active in the feminist movement.

Does Linda look more like a bank teller, or more like a bank teller who is active in the feminist movement? Everyone agrees that Linda fits the idea of a “feminist bank teller” better than she fits the stereotype of bank tellers. The stereotypical bank teller is not a feminist activist, and adding that detail to the description makes for a more coherent story. However, the probability that Linda is a feminist bank teller *must* be lower than the probability of her being a bank teller. Yet “feminist bank teller” ranked higher than “bank teller” in both studies.<sup>82</sup> In an attempt to remove the error, the researchers limited the question to simply:

Which alternative is more probable?

Linda is a bank teller.

Linda is a bank teller and is active in the feminist movement.

About 85% to 90% of undergraduates at several major universities chose the second option.<sup>83</sup>

The most coherent stories are not necessarily the most probable, but they are *plausible*, and the notions of coherence, plausibility, and probability are easily confused.

What is more likely:

A massive flood somewhere in North America next year, in which more than 1,000 people drown; or

An earthquake in California sometime next year, causing a flood in which more than 1,000 people drown.

The California earthquake scenario is more plausible than the North America scenario, although its probability is certainly smaller. As expected, probability judgments were higher for the richer and more detailed scenario. This is a trap for forecasters and their clients: adding detail to scenarios makes them more persuasive, but less likely to come true.<sup>84</sup>

Mark has hair.

Mark has blonde hair.

Jane is a teacher.

Jane is a teacher and walks to work.

The two sets of statements above have the same logical structure as the earthquake / flood examples, but they do not produce illogical responses, because the more detailed outcome is only more detailed – it is not more plausible, or more coherent, or a better story.<sup>85</sup>

Assume that two sets of old china are being offered for sale:

	Set A: 40 pieces	Set B; 24 pieces
Dinner Plates	8, all in good condition	8, all in good condition
Soup/Salad Bowls	8, all in good condition	8, all in good condition
Desert Plates	8, all in good condition	8, all in good condition
Cups	8, two of them broken	
Saucers	8, 7 of them broken	

The participants in this joint evaluation experiment were willing to pay a little more for Set A than for Set B: \$32 versus \$30. But in single evaluation, Set B was priced much higher than Set A: \$33 versus \$23.<sup>86</sup>

- A. Borg will win the batch.
- B. Borg will lose the first set.
- C. Borg will lose the first set but win the match.
- D. Borg will win the first set but lose the match.

The probability of Answer B *must* be higher than Answer C, but, because it seemed more plausible, 72% said that C was more likely.<sup>87</sup>

Suppose you were betting on the sequence of Green or Red die cast:

- 1. RGRRR
- 2. GRGRRR
- 3. GRRRRR

Because the die in the above experiment had twice as many Green Faces as Red Faces, the first sequence is fairly unrepresentative. The second sequence fits better with expectations, because it includes two G's. However, this sequence was constructed by simply adding G to the beginning of the first sequence, so it can only be *less likely* than the first. Yet almost two-thirds of respondents preferred to bet on sequence No. 2.<sup>88</sup>

<p>A health survey was conducted in a sample of adult males in British Columbia, of all ages and occupations. Please give your best estimate of the following values:</p> <p>What percentage of the men surveyed have had one or more heart attacks?</p> <p>What percentage of the men surveyed are both over 55 years old and have had one or more heart attacks?</p>	<p>A health survey was conducted in a sample of 100 adult males in British Columbia, of all ages and occupations. Please give your best estimate of the following values:</p> <p>How many of the 100 participants have had one or more heart attacks?</p> <p>How many of the 100 participants both are over 55 years old and have had one or more heart attacks?</p>
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The estimates people who saw the questions on the right were significantly better than the estimates given by people who saw the questions on the left. Why? Presumably, because the question “how many” out of 100 prompted the participants to actively visualize individuals, (and then the sub-sets of those individuals), while “what percentage” was abstract, and ‘System 2’ was too lazy to become engaged.<sup>89</sup>

“If you visit a courtroom” Kahneman suggests, “you will observe that lawyers apply two styles of criticism: to demolish a case they raise doubts about the strongest arguments that favor it; to discredit a witness, they focus on the weakest part of the testimony.”<sup>90</sup>



Consider the following two versions of an accident:

Version 1:

A cab was involved in a hit-and-run.

Two cab companies, Green and Blue, operate in the city.

85% of the cabs are Green, and 15% are Blue.

A witness identified the cab as Blue.

The witness was shown to be able to correctly identify the color under the same circumstances 80% of the time.

Version 2:

The two cab companies operate the same number of cabs,

but Green cabs are involved in 85% of accidents.

A witness identified the cab as Blue.

The witness was shown to be able to correctly identify the color under the same circumstances 80% of the time.

In the Version 1, the Base Rate of Blue cabs is a statistical fact, but does not paint a causal story. How does the number of Green and Blue cabs in the city cause this cab driver to hit and run? In Version 2, by contrast, a stereotype is immediately formed that Green cab drivers are reckless. The stereotype is applied to the particular driver and fits into the casual story.<sup>91</sup>

The two types of Base Rate information are treated differently:

- Statistical Base Rates are generally underweighted, and sometimes neglected altogether, when specific information about the case at hand is available.
- Casual Base Rates are treated as information about the individual case and are easily combined with other case-specific information.<sup>92</sup>

The statistician David Freedman hypothesized that whatever litigant, in a civil or criminal trial, had to explain regression to the jury would lose the case. Why? Because we are strongly biased toward causal explanations, and do not deal well with “mere statistics”. When our attention is called to an event, associative memory will look for its cause. Causal explanations will be evoked when regression is detected, but they will be wrong because the truth is that Regression To The Mean has an explanation but does not have a cause. The event that attracts our attention in the golfing tournament is the frequent deterioration of the performance of the golfers who were successful on Day 1. The best explanation of it is that those golfers were unusually lucky that day, but this explanation lacks the causal force that our minds prefer. Indeed, we pay people quite well to provide interesting explanations of regression effects. A business commentator who correctly announces that “the business did better this year because it had done poorly last year” is likely to have a short tenure on the air.<sup>93</sup>

“Statistical results with a casual interpretation have a stronger effect on our thinking than non-casual information. But even compelling casual statistics will not change long-held beliefs or belief rooted in personal experience. On the other hand, surprising individual cases have a powerful impact.”<sup>94</sup>

“You are more likely to learn something by finding surprises in your own behavior than by hearing surprising facts about people in general.”<sup>95</sup>

In the *Black Swan*,<sup>96</sup> Taleb introduced the notion of a “Narrative Fallacy” to describe how our flawed understanding of the past (including, particularly the fact that rare and unexpected historical events seem predictable and ordinary when viewed in retrospect), coupled with our desire to build stories around facts, shape our understanding of the world and our expectations for the future.

The Halo Effect helps to keep explanatory narratives simple and coherent by exaggerating the consistency of evaluations: good people do only good things and bad people are all bad.<sup>97</sup>

Hindsight and Outcome Bias are especially unkind to decision makers who act as agents for others – physicians, attorneys, financial advisers, third-base coaches, CEOs, social workers, diplomats, politicians. We are prone to blame decision makers for good decisions that worked out badly and to give them too little credit for successful moves that appear obvious only after the fact. Consider a low-risk surgical intervention in which an unpredictable accident occurred that caused the patient's death; the jury will be prone to believe, after the fact, that the operation was actually risky and that the doctor who ordered it should have known better.<sup>98</sup>

The explanatory stories that people find compelling are simple; are concrete rather than abstract; assign a larger role to talent, stupidity, and intentions than to luck; and focus on a few striking events that happened rather than on the countless events that failed to happen.<sup>99</sup>

Good stories provide a simple and coherent account of people's actions and intentions. Behavior is interpreted as a manifestation of general propensities and personality traits – causes that are readily matched to effects.<sup>100</sup>

A story is about significant events and memorable moments, not about time passing.

“Caring for people” says Kahneman, “often takes the form of concern for the quality of their stories, not for their feelings. Indeed, we can be deeply moved even by events that change the stories of people who are already dead. We feel pity for a man who died believing in his wife's love for him, when we hear that she had a lover for many years and stayed with her husband only for his money. We pity the husband although he had lived a happy life. We feel the humiliation of a scientist who made an important discovery that was proved false after she died, although she did not experience the humiliation. Most important, of course, we all care intensely for the narrative of our own life and very much want it to be a good story, with a decent hero.”<sup>101</sup>

### **Social vs. Market Relationships**

Mark Twain, in relating the story of Tom Sawyer and the whitewashing of the fence, observed that “work consists of whatever a body is obligated to do, and play consists of whatever a body is not obligated to do.... There are wealthy gentlemen in England who drive four-horse

passenger-coaches twenty or thirty miles on a daily line in the summer because the privilege costs them considerable money; but if they were offered wages for the service, that would turn it into work, and then they would resign.”<sup>102</sup>

We have social relationships and market relationships, and apply different sets of norms to those exchanges. Introducing market norms into social exchanges violates social norms and hurts those relationships.<sup>103</sup>

Companies are cautioned to be careful and consistent in their approaches to both employees and customers in this regard. “Although companies have poured billions of dollars into marketing and advertising to create social relationships – or at least the impression of social relationships – they don’t seem to understand the nature of a social relationship. You can’t treat your customers like family one moment and then treat them impersonally – or, even worse, as a nuisance or a competitor – a moment later when it becomes more convenient or profitable.”<sup>104</sup>

When people are given a small stipend for donating blood rather than simply being praised for their altruism, they tend to donate less. “The stipend turned a noble act of charity into a painful way to make a few dollars, and it wasn’t worth it.”<sup>105</sup>

### **The Strengths and Weaknesses of “Experts”**

One researcher interviewed 284 people who made their living “commenting or offering advice on political and economic trends.” They were asked to assess the probabilities that certain events would occur in the not-too-distant future, both in areas of the world in which they specialized and in regions about which they had less knowledge. The conclusion was that people who spend their time, and earn their living, studying a particular topic produce poorer predictions than dart-throwing monkeys who would have distributed their choices evenly over the possibilities. Even in the region they knew best, experts were not significantly better than non-specialists.<sup>106</sup>

Those who know more forecast slightly better than those who know less. But those with the most knowledge are often less reliable. Because the person who acquires more knowledge develops an enhanced illusion of his or her skill, and becomes unrealistically overconfident.<sup>107</sup>

Along those lines, experts resisted admitting that they had been wrong. And when they were compelled to admit error, they had a large collection of excuses: they had been wrong only in their timing, an unforeseeable event had intervened, or they had been wrong but for the right reasons.<sup>108</sup>

In a similar study, people who had successfully predicted an extreme event were found to have worse overall forecasting records than their peers. “People who make these bold predictions tend to overestimate how likely extreme events are, so, while they may happen to hit it right once in a while, over all they’re not actually good forecasters.”<sup>109</sup>

In another experiment, real-estate agents were given an opportunity to assess the value of a house that was actually on the market. They visited the house and studied a comprehensive booklet of information that included an asking price. Half the agents saw an asking price that was substantially higher than the listed price of the house; the other half saw an asking price that was substantially lower. Each agent gave her opinion about a reasonable buying price for the house, as well as the lowest price at which she would agree to sell the house if she owned it. The agents were then asked about the factors that affected their judgment. Remarkably, the asking price was not acknowledged to be one of the factors; the agents took pride in their ability to ignore it. In actuality, however, the anchoring effect of the list price was 41% (a strong correlation). Indeed, the professionals were almost as susceptible to anchoring effects as business school students with no real-estate experience, (whose anchoring index was 48%). The only difference between the two groups was that the students conceded that they were influenced by the anchor, while the experts denied it.<sup>110</sup>

According to a study on the reliability of police work, law-enforcement experience does not generally improve the ability to detect lies among suspects and other witnesses regarding criminal activity. Interestingly, those police officers who said they paid close attention to non-verbal clues performed the worst. Indeed, both untrained students and experienced police officers were better at telling true confessions from false ones when they listened to an audio recording of an interview, rather than watching it on video. In one experiment, police officers performed less well than the students, but expressed a greater confidence in their ability to tell who was lying.<sup>111</sup>

In discussing the Goldberg / Cook County ER test for diagnosing heart attacks, Gladwell observes that there is an automatic tendency among physicians to believe that a life-or-death decision must be a difficult decision. “Doctors think it’s mundane to follow guidelines” Arthur Evans says. “It’s much more gratifying to come up with a decision on your own. Anyone can follow an algorithm. There is a tendency to say ‘Well, certainly I can do better. It can’t be this simple and efficient; otherwise, why are they paying me so much money?’”<sup>112</sup>

At the same time, however, Gladwell argues that the first impressions of experts are frequently better than the untrained and inexperienced. “The gift of their expertise is that it allows them to have a much better understanding of what goes on behind the locked door of their unconscious. When we become an expert in something, our tastes grow more esoteric and complex. It is really only experts who are able to reliably account for their reactions.”<sup>113</sup>

### **The Tipping Point**

The idea behind Malcolm Gladwell’s *The Tipping Point* is that the best way to understand fashion trends, crime waves, the emergence of bestsellers, teenage smoking, or other changes in everyday life, is to think of them as epidemics. “Ideas and products and messages and behaviors spread just like viruses do.”<sup>114</sup> With three characteristics: (1) contagiousness; (2) the fact that little causes have big effects; and (3) that change happens not gradually but at one dramatic moment.<sup>115</sup>

The Tipping Point also operates by and according to three basic rules, what he calls: (i) The Law of the Few (“connectors”); (ii) the Stickiness Factor; and (iii) the Power of Context.

Gladwell calls certain people “Connectors”. Taking a list of 250 surnames at random from the New York City phone book, he tested different people in different groups to determine levels of connectivity, by asking how many names on the list belonged to someone whom the participant knew.<sup>†††</sup> In every group, Gladwell found a wide range between the highest and the lowest scorers. College students ranged from 2 to 95; in a random sample, the scores ranged from 9 to 118; even among attendees of a Princeton Conference – “a highly homogenous group of people of similar age, education, and income” – the range was enormous: from 16 to 108. Of the 400 or so people whom Gladwell has tested, eight have scored over 90; four more over 100. “Sprinkled among every walk of life, in other words, are a handful of people with a truly extraordinary knack of making friends and acquaintances. They are Connectors.”<sup>116 †††</sup>

Paul Revere, Gladwell posits, was famously successful in spreading the word that the British were coming because Paul Revere was a Connector. (Another revolutionary, William Dawes, did the same thing that Paul Reverse did, but no one remembers him, as his delivery of the same urgent message did not catch fire.) At the same time, Gladwell says, Reverse was also a “Maven” – a Yiddish word for one who accumulates knowledge. “In recent years, economists have spent a great deal of time studying Mavens, for the obvious reason that if marketplaces depend on information, the people with the most information must be the most important.”<sup>117</sup>

A Maven is not necessarily a persuader. His motivation is to educate and to help. “To be a Maven is to be a teacher. But it is also, and more emphatically, to be a student. Mavens are really information brokers, sharing and trading in what they know.”<sup>118</sup>

In terms of persuasion, Gladwell derives three lessons from various studies: First, that little things can make as much of a difference as big things. Second, that non-verbal clues are as or more important than verbal clues. Third, that persuasion often works in ways that we do not appreciate.

Students who thought tuitions should rise because they were listening to an editorial in support while nodding their heads would not say “because I was nodding my head while listening to that editorial”;<sup>§§§</sup> they would probably say because they found the editorial intelligent or insightful, attributing their attitudes to more obvious, logical causes.

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<sup>†††</sup> The definition of “know” as used in these surveys was extremely broad.

<sup>†††</sup> Gladwell examined, for example, the “connectedness” of actors and actresses, working from the “Six Degrees from Kevin Bacon” game. A computer scientist named Brett Tjaden actually figured out that, for the quarter million or so actors and actresses who have played in television films or major motion pictures, the average is 2.8312 steps, placing Kevin Bacon 669<sup>th</sup> on the list. John Wayne, who was in 179 movies, was only 116<sup>th</sup> on the list, with an average 2.7173 degrees of separation. Number one on the list: Rod Steiger. Although Wayne appeared in a lot more movies, Steiger was cast alongside other actors in a wider variety of movies, in different genres, from A-list to B-list, and everywhere in-between.

<sup>§§§</sup> In this study, students were asked to test the listening quality of new headphones. Along with contemporary music, they were exposed to a radio editorial in support of tuition raises, from the present level of \$587 to \$750. One of three groups was told to nod their heads up and down as they listened; one group was told to shake their heads from side to side; and the third group was asked to keep their heads still. After the test, they were asked about tuition. The students who kept their heads still thought the appropriate tuition was \$582. The group who shook their heads from side to side thought tuition should be lowered to \$467. And the group that nodded their heads up and down thought tuition should be raised to \$646.

Similarly, the ABC voters who voted for Reagan would never say they voted that way because Peter Jennings smiled every time he mentioned the President; \*\*\*\* they would say it was because they liked Reagan's policies, or they thought he was doing a good job. "It would never occur to them that they could be persuaded to reach a conclusion by something so arbitrary and seemingly insignificant as a smile or a nod from a newscaster."<sup>119</sup>

As to the power of context, researchers studying the bystander problem found that the greatest predictor in how many people would come to another's aid was the number of witnesses present.<sup>††††</sup> In one experiment, a student alone in her room faked an epileptic fit. When there was one person alone in the room next door, that person rushed to her aid 85% of the time. But when he or she believed that there were four other students who could also overhear the seizure, they came to her aid only 31% of the time. In another study, people who saw smoke seeping from under a doorway would report it 75% of the time if they were alone, but only 38% of the time if they were in a group of people. "When people are in a group, responsibility for acting is diffused. They assume that someone else will make the call, or they assume that because no one is acting, the apparent problem isn't really a problem. The lesson [from the Kitty Genovese incident] is not that no one called despite the fact that thirty-eight people heard her scream; it is that no one called *because* thirty-eight people heard her scream."<sup>120</sup>

Seminary students at the Princeton Theological Seminary were provided with a number of various anchors, including assignments on the parable of the Good Samaritan, before encountering a man slumped in an alley, coughing and groaning, with his eyes closed. Neither the fact that students had just written that they entered the ministry to help people, nor that they had just read the Good Samaritan, had any material fact on whether they stopped. Rather, the only thing that mattered was whether they were late. Of the group that was late, only 10% stopped to help, whereas 63% stopped when they believed they had a few minutes to spare.<sup>121</sup>

## **Policy Issues**

In general, a defendant with a weak case is likely to be risk-seeking, prepared to gamble rather than accept a very unfavorable settlement. In the face-off between a risk-averse plaintiff and a risk-seeking defendant, the defendant holds the stronger hand. The superior bargaining

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\*\*\*\* In a famous study conducted by Brian Mullen during the 1984 Presidential election, participants looked at a number of two-and-a-half second clips, with no sound, and rated the facial expressions of anchormen, without knowing what the newscasters were talking about. While Dan Rather and Tom Broke were rated relatively the same when talking about Reagan and Mondale, Peter Jennings was interpreted as looking decisively more favorable in his non-verbal facial expressions when discussing Reagan. (Mullen also showed the participants a control group of unrelated 'happy' and 'sad' stories, which revealed that Jennings was generally the least expressive of the three anchormen.) Mullen then studied voting patterns, and found that ABC watchers voted for Reagan in far greater numbers than those who watched CBS or NBC.

†††† Much of this research, (and subsequent dispute and debate regarding the facts and the way in which those facts were portrayed by the press), stems from the infamous Kitty Genovese incident, in which a woman was stabbed to death in Queens in 1964, over a half-hour period, while 38 of her neighbors reportedly watched from their windows without calling the police or attempting to intervene. (See, e.g., Nicholas Lemmann, "A Call for Help" *The New Yorker* (March 10, 2014) and "The Myth of Apathy" *The New Yorker* (April 7, 2014) p.8.)

position of the defendant should be reflected in negotiated settlements, with the plaintiff settling for less than the statistically expected outcome of the trial.<sup>122</sup>

Making the point that a physician's liability risk can be better determined by listening in on very brief snippets of conversations between doctors and patients than studying their training and credentials and pouring over records to see how many errors they have made, Gladwell confirms that "the overwhelming number of people who suffer an injury due to the negligence of a doctor never file a malpractice suit at all."<sup>123</sup>

In 1976, the average CEO was paid 36 times as much as the average worker. By 1993, the average CEO was paid 131 times as much. Hence, the SEC forced publicly traded companies to disclose the compensation of the CEO, hoping that it would bring compensation more into line. In fact, just the opposite occurred. By 2009, the average CEO was earning around 369 times the average worker.<sup>124</sup>

In one of many experiments that were prompted by the litigation about the notorious *Exxon Valdez* oil spill, participants were asked about their willingness to pay for nets to cover oil ponds in which migratory birds often drown. Different groups of participants stated their willingness to pay to save 2,000, 20,000 or 200,000 birds. If saving birds is an economic good, it should be a sum-like variable: saving 200,000 birds should be worth much more than saving 2,000 birds. In fact, however, the average contributions were \$80, \$78 and \$88 respectively.<sup>125</sup>

In other *Exxon Valdez* research, the typical American household said it was willing to pay \$31 to avoid another spill.<sup>126</sup>

Finally, Kahneman talks about the possible anchoring effects of caps on damages. "Consider the effect of capping awards at \$1 million" he says. "This rule would eliminate all larger awards, but the anchor would also pull up the size of many awards that would otherwise be much smaller. It would almost certainly benefit serious offenders and large firms much more than small ones."<sup>127</sup>

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## ENDNOTES

<sup>1</sup> See, e.g., Mark Mandell “Implementing Choice Theory at Trial” AAJ Annual Convention, San Francisco, CA (July 2013); James B. Lees, “Achieving Justice in an Unjust World – Using Psychology to Win” AAJ Case-Plus, Houston, TX (Dec. 2009); David Wenner, *Inside the Juror’s Mind*, Trial Guides (2011).

<sup>2</sup> Daniel Kahneman, *Thinking, Fast and Slow* (Farrar Straus & Giroux 2011) (first paperback edition 2013), p.269. (See also, Kahneman, “A Psychological Perspective on Economics” *The American Economic Review*, Vol. 93, No. 2 (May 2003).)

<sup>3</sup> *Econometrica*, Vol.47, No.2, pp.263-291 (March 1979).

<sup>4</sup> *Thinking Fast and Slow*, p.25.

<sup>5</sup> *Thinking Fast and Slow*, p.25.

<sup>6</sup> Malcolm Gladwell, *Blink* (Little Brown & Co. 2013) p.14.

<sup>7</sup> *Blink*, p.44.

<sup>8</sup> *Blink*, p.119.

<sup>9</sup> *Blink*, pp.125-136.

<sup>10</sup> *Blink*, p.137.

<sup>11</sup> *Thinking Fast and Slow*, pp.44-45.

<sup>12</sup> *Thinking Fast and Slow*, p.92.

<sup>13</sup> *Thinking Fast and Slow*, p.92.

<sup>14</sup> *Thinking Fast and Slow*, p.95.

<sup>15</sup> *Thinking Fast and Slow*, p.96.

<sup>16</sup> *Thinking Fast and Slow*, p.97.

<sup>17</sup> *Thinking Fast and Slow*, pp.98-99.

<sup>18</sup> *Thinking Fast and Slow*, p.98-99.

<sup>19</sup> *Thinking Fast and Slow* p.105.

<sup>20</sup> *Thinking Fast and Slow*, p.82.

<sup>21</sup> *Thinking Fast and Slow* p.119.

<sup>22</sup> Dan Ariely, *Predictably Irrational* (revised and expanded paperback edition) (HarperCollins 2009) pp.28-31.

<sup>23</sup> *Predictably Irrational*, pp.34-36.



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- <sup>24</sup> *Predictably Irrational*, p.38.
- <sup>25</sup> *Thinking Fast and Slow*, p.126.
- <sup>26</sup> *Thinking Fast and Slow*, pp.126-127 (citing Galinsky & Mussweiler “First Offers as Anchors: The Role of Perspective-Taking and Negotiator Focus” *Journal of Personality and Social Psychology* No.81, pp.657-669 (2001)).
- <sup>27</sup> *Thinking Fast and Slow*, p.102.
- <sup>28</sup> *Predictably Irrational*, pp.208-209.
- <sup>29</sup> *Predictably Irrational*, p.235.
- <sup>30</sup> *Blink*, pp.52-53.
- <sup>31</sup> *Thinking Fast and Slow*, pp.60-61.
- <sup>32</sup> *Blink*, p.181.
- <sup>33</sup> *Predictably Irrational*, p.3.
- <sup>34</sup> *Predictably Irrational*, pp.4-6.
- <sup>35</sup> *Predictably Irrational*, p.9.
- <sup>36</sup> *Predictably Irrational*, pp.3-4.
- <sup>37</sup> *Predictably Irrational*, p.4 (citing Kantor “Entrees Reach \$40” *New York Times* (Oct. 21, 2006)).
- <sup>38</sup> *Predictably Irrational*, pp.19-20.
- <sup>39</sup> *Thinking Fast and Slow*, p.336.
- <sup>40</sup> *Thinking Fast and Slow*, p.360.
- <sup>41</sup> *Thinking Fast and Slow*, p.302.
- <sup>42</sup> *Thinking Fast and Slow*, p.284. See also Novemsky & Kahneman “The Boundaries of Loss Aversion” *Journal of Marketing Research* No.42, pp.119-128 (2005).
- <sup>43</sup> *Thinking Fast and Slow*, p.284.
- <sup>44</sup> *Thinking Fast and Slow*, p.336.
- <sup>45</sup> *Predictably Irrational*, p.58.
- <sup>46</sup> *Predictably Irrational*, p.58.
- <sup>47</sup> *Predictably Irrational*, p.64.
- <sup>48</sup> *Predictably Irrational*, p.60.
- <sup>49</sup> *Predictably Irrational*, pp.169-173.

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- <sup>50</sup> Hossain & List, “The Behavioralist Visits the Factory: Increasing Productivity Using Simple Framing Manipulations” *Management Science* (July 18, 2012).
- <sup>51</sup> David Hand, *The Improbability Principle: While Coincidences, Miracles and Rare Events Happen Every Day* (Scientific American/Ferrar Strauss & Giroux 2014).
- <sup>52</sup> *Thinking Fast and Slow*, p.88.
- <sup>53</sup> *Thinking Fast and Slow*, p.329 (citing Kimihiko Yamagishi “When a 12.86% Mortality Is More Dangerous Than 24.14%: Implications for Risk Communication” *Applied Cognitive Psychology* No.11, pp.495-506 (1997)).
- <sup>54</sup> *Thinking Fast and Slow*, p.329 (citing Yamagishi “When a 12.86% Mortality Is More Dangerous Than 24.14%”).
- <sup>55</sup> *Blink*, p.179.
- <sup>56</sup> *Thinking Fast and Slow*, p.126-127.
- <sup>57</sup> *Tipping Point*, pp.96-98 and 131.
- <sup>58</sup> *Tipping Point*, p.131.
- <sup>59</sup> *Thinking Fast and Slow*, p.328.
- <sup>60</sup> *Thinking Fast and Slow*, p.354 (citing Miller & McFarland “Counterfactual Thinking and Victim Compensation: A Test of Norm Theory” *Personality and Social Psychology Bulletin* No.12, pp.513-519 (1986)).
- <sup>61</sup> *Predictably Irrational*, pp.43-44.
- <sup>62</sup> Levitt & Dubner, *Freakonomics* (First Harper Perennial ed. 2009), pp.71-72 (citing Levitt & Syverson, “Market Distortions When Agents Are Better Informed: A Theoretical and Empirical Exploration of the Value of Information in Real Estate Transactions” National Bureau of Economic Research Working Paper (2005)).
- <sup>63</sup> *Thinking Fast and Slow*, p.45.
- <sup>64</sup> *Thinking Fast and Slow*, p.64 (citing Shah & Oppenheimer “Easy Does It: The Role of Fluency in Case Weighting” *Judgment and Decision Making Journal* No.2, pp.371-379 (2007)).
- <sup>65</sup> Kleisner et al “Perceived Intelligence is Associated with Measured Intelligence in Men But Not Women” *PLOS One* (March 2014) (cited in Beck, “How to Look Smart” *The Atlantic* (Sept. 2014) p.18).
- <sup>66</sup> Van Tilburg & Igou, “The Impact of Middle Names” *European Journal of Social Psychology* (June 2014) (cited in Beck, “How to Look Smart” *The Atlantic* (Sept. 2014) p.18).
- <sup>67</sup> Oppenheimer “Consequences of Erudite Vernacular Utilized Irrespective of Necessity” *Applied Cognitive Psychology* No.20, pp.139-156 (March 2006) (cited in Beck, “How to Look Smart” *The Atlantic* (Sept. 2014) p.18).
- <sup>68</sup> Oppenheimer “Consequences of Erudite Vernacular Utilized Irrespective of Necessity” *Applied Cognitive Psychology* No.20, pp.139-156 (March 2006) (cited in *Thinking Fast and Slow*, p.63) (also cited in Beck, “How to Look Smart” *The Atlantic* (Sept. 2014) p.18).
- <sup>69</sup> *Thinking Fast and Slow*, p.64.
- <sup>70</sup> *Thinking Fast and Slow*, p.65.

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- <sup>71</sup> *Thinking Fast and Slow*, p.100.
- <sup>72</sup> *Thinking Fast and Slow*, p.88.
- <sup>73</sup> *Thinking Fast and Slow*, p.85.
- <sup>74</sup> *Thinking Fast and Slow*, p.75.
- <sup>75</sup> *Thinking Fast and Slow*, p.82.
- <sup>76</sup> *Thinking Fast and Slow*, p.347 (citing Hart & Honore, *Causation in the Law* (Cambridge University Press 1982) p.33). See also Landman “Regret and Elation Following Action and Inaction” *Personality and Social Psychology Bulletin* No.13, pp.524-536 (1987), and Gleicher, et al “The Role of Counterfactual Thinking in Judgment or Affect” *Personality and Social Psychology Bulletin* No.16, pp.284-295 (1990).
- <sup>77</sup> *Thinking Fast and Slow*, p.132.
- <sup>78</sup> *Thinking Fast and Slow*, p.133.
- <sup>79</sup> *Thinking Fast and Slow*, p.138 (citing Lichtenstein, et al “Judged Frequency of Lethal Events” *Journal of Experimental Psychology: Human Learning and Memory* No.4, pp.551-578 (1978)).
- <sup>80</sup> *Thinking Fast and Slow*, p.363.
- <sup>81</sup> *Thinking Fast and Slow*, p.153
- <sup>82</sup> *Thinking Fast and Slow*, p.156-157.
- <sup>83</sup> *Thinking Fast and Slow*, p.158.
- <sup>84</sup> *Thinking Fast and Slow*, pp.159-160.
- <sup>85</sup> *Thinking Fast and Slow*, p.159-160.
- <sup>86</sup> *Thinking Fast and Slow*, p.160-161.
- <sup>87</sup> *Thinking Fast and Slow*, p.162.
- <sup>88</sup> *Thinking Fast and Slow*, p.162.
- <sup>89</sup> *Thinking Fast and Slow*, p.163.
- <sup>90</sup> *Thinking Fast and Slow*, p.165.
- <sup>91</sup> *Thinking Fast and Slow*, p.167.
- <sup>92</sup> *Thinking Fast and Slow* p.168.
- <sup>93</sup> *Thinking Fast and Slow*, p.182.
- <sup>94</sup> *Thinking Fast and Slow*, p.174.
- <sup>95</sup> *Thinking Fast and Slow*, p.174.
- <sup>96</sup> Nassim Taleb, *The Black Swan: The Impact of the Highly Improbable* (Random House 2007).

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- <sup>97</sup> *Thinking Fast and Slow*, p.199.
- <sup>98</sup> *Thinking Fast and Slow*, p.203.
- <sup>99</sup> *Thinking Fast and Slow*, p.199.
- <sup>100</sup> *Thinking Fast and Slow*, p.199.
- <sup>101</sup> *Thinking Fast and Slow*, p.387.
- <sup>102</sup> Mark Twain, *The Adventures of Tom Sawyer* (1876) (as quoted in *Predictably Irrational*, pp.44-45).
- <sup>103</sup> *Predictably Irrational*, p.84.
- <sup>104</sup> *Predictably Irrational*, pp.87-88.
- <sup>105</sup> *Freakonomics*, p.20 (citing Titmuss, “The Gift of Blood” *Trans-action* 8 (1971)).
- <sup>106</sup> *Thinking Fast and Slow*, p.219.
- <sup>107</sup> *Thinking Fast and Slow*, p.219.
- <sup>108</sup> *Thinking Fast and Slow*, p.219.
- <sup>109</sup> James Surowiecki, “Punditonomics” *The New Yorker* (April 7, 2014) p.23.
- <sup>110</sup> *Thinking Fast and Slow*, p.124.
- <sup>111</sup> Douglas Starr, “The Interview” *The New Yorker* (Dec. 9, 2013) p.42 (at p.45).
- <sup>112</sup> *Blink*, pp.138-139.
- <sup>113</sup> *Blink*, p.179.
- <sup>114</sup> Malcolm Gladwell, *The Tipping Point* (Little Brown & Co. 2013) p.7.
- <sup>115</sup> *Tipping Point*, p.9.
- <sup>116</sup> *Tipping Point*, p.41.
- <sup>117</sup> *Tipping Point*, p.60.
- <sup>118</sup> *Tipping Point*, p.69.
- <sup>119</sup> *Tipping Point*, pp.78-80.
- <sup>120</sup> *Tipping Point*, p.28.
- <sup>121</sup> *Tipping Point*, pp.164-165.
- <sup>122</sup> *Thinking Fast and Slow*, p.320 (citing Guthrie “Prospect Theory, Rule Preference and the Law” 97 NW.U.L.REV. 1115 (2003); Rachlinski “Gains, Losses and the Psychology of Litigation” 70 S.CAL.L.REV. 113 (1996); Gross & Syverud “Getting to No: A Study of Settlement Negotiations and the Selection of Cases for Trial” 90 MICH.L.REV. 319 (1991)).

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<sup>123</sup> *Blink*, p.40 (referencing “How Plaintiffs’ Lawyers Pick Their Targets” *Medical Economics* (April 24, 2000); Levinson, et al “Physician-Patient Communication: The Relationship With Malpractice Claims Among Primary Care Physicians and Surgeons” *Journal of the American Medical Association* Vol.277, No.7, pp.553-559 (1997); Ambady, et al “Surgeons’ Tone of Voice: A Clue to Malpractice History” *Surgery* Vol.132, No.1, pp.5-9 (2002)). For additional statistics and references regarding the incidence of medical malpractice and malpractice litigation, (and other types of injuries or deaths and resulting litigation), see, e.g., Herman, *America and the Law: Challenges for the 20<sup>th</sup> Century* (Gravier House Press 1998) pp.221-231.

<sup>124</sup> *Predictably Irrational*, pp.16-17. For additional statistics and references regarding CEO compensation (and related issues), see, e.g., Herman, *America and the Law: Challenges for the 20<sup>th</sup> Century* (Gravier House Press 1998) pp.231-233, 246-250, 260-262.

<sup>125</sup> *Thinking Fast and Slow*, p.93 (citing Desvousges, et al “Measuring Natural Resource Damages with Contingent Valuation: Tests of Validity and Reliability” *Contingent Valuation: A Critical Assessment* (ed. Jerry A. Hausman) (1993) pp.91-159).

<sup>126</sup> *Freakonomics*, p.143 (citing Harrison, “Assessing Damages for the Exxon Oil Spill” University of Central Florida Working Paper (2004)).

<sup>127</sup> *Thinking Fast and Slow*, p.127 (citing Pogarsky & Babcock “Damages Caps, Motivated Anchoring, and Bargaining Impasse” *Journal of Legal Studies* No.30, pp.143-159 (2001)).