

The Psychology of Bad Economic Decisions



By Don Philbin

If humans were completely rational and shared equal information, their legal decisions might resemble rational economic choices.

But we know better than to assume that humans are completely rational and our experience with legal disputes is evidence of consistent information gaps. In this short piece (excerpted from a longer forthcoming piece in Vol. XIII of *Harvard Negotiation Law Review*), I describe a few ways that disputing parties and their lawyers systematically depart from rational decision making. Along the way, I offer tips on how to get productive settlement discussions back on track after being derailed by some pitfalls that are part of our all-too-human psychology.

A. Risk Tolerance and Loss Aversion

Some people are risk-takers and others are risk-averse. Filing and defending lawsuits is inherently risky, but having a higher risk tolerance than one's opponent may be advantageous in negotiations. Differences in risk tolerance are a source of value creation – the party more willing

to bear risk should get some benefit in the negotiation. If mediators knew more about parties' risk attitudes, they could help them craft more successful settlement offers. Just what is known about decisions under conditions of risk?

Nobel Laureates Daniel Kahneman, Amos Tversky, and others have done important work in the areas of adaptive thinking and bounded rationality. While it is difficult to determine exactly how much more risk-seeking or risk-adverse a party to a particular suit is at a given point, research has uncovered important generalities.

Risk attitudes are dependant, in part, on whether the party faces a gain or loss. Plaintiffs generally seek recoveries that their defendants resist paying. Those roles change the lens through which each views potential outcomes. Unless they have high sunk costs or face fee shifting provisions, plaintiffs face a sure gain in settlement or the possibility of a larger gain at trial. In the absence of counterclaims or offers of judgment, defendants look through the other end of the telescope – they face a sure loss by settling or the potential of a bigger loss at trial. In experiments, Tversky and Kahneman found that a large majority of subjects facing gains preferred a certain \$240 to a 25 percent chance of \$1,000 (worth on

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average \$250). On the other hand, when facing a loss, the same group preferred a 75 percent chance of loss of \$1,000 (worth \$750) to a sure loss of \$750.

People tend to make risk-averse choices when facing a gain; that is, they prefer certain gains over larger but riskier gains. People facing losses, however, tend to make risk-seeking choices; that is, they prefer riskier outcomes to sure losses. Kahneman emphasizes the point by contemplating salary offers of \$40,000 and \$45,000 to people making \$35,000 and \$50,000. He then notes that the "psychological differences between the alternatives is likely to be greater in the latter case."

In another experiment, groups of students were given the chore of buying and selling coffee mugs. With exactly the same information, the median price set by the sellers was \$7.12, but the median buyer was only willing to pay \$2.88 for the same mug. So it is with lawsuits. Well-intentioned parties and lawyers arrive at different valuations of the same outcomes not because of forces of good or ill, but differences in assigned position. Negotiators recognize that sellers and plaintiffs will usually assign higher values to a negotiated item than buyers and defendants.

Partisan aspirations are tempered, we hope, by the expert opinions of the lawyers. If those aspirations are aggressive, the chances of impasse naturally increase. To the extent that aggressive aspirations are the product of a risk-seeking attitude coupled with incomplete information, a mediator may unearth that reality and help the parties adjust their tactics and attitudes. At the very least, we would do well to recognize that not everyone views risk from the same perspective.

B. Optimistic Overconfidence

Life would be dull without optimists, but excessive optimism increases the odds of impasse. Faced with a nasty lawsuit, litigants want lawyers to be their champions, to hold an optimistic view of their chances. Most clients do not like their champions to be poking holes in their case. They expect mediators and judges to do that. But whoever does it, parties are unlikely to settle cases unless they perceive the negotiated outcome to be more attractive than their alternatives. While a cold water evaluation may dampen overconfident expect-

tations, economic analyses iteratively guide litigants through probability-adjusted outcomes without turning them off by telling them they are wrong.

Overconfidence leads people to discount small probabilities and luck, and overestimate unattractive consequences. It is human nature to place more emphasis on facts that support desired outcomes and to make self-serving assessments of one's own ability. More than 80 percent of interviewed entrepreneurs described their chances of success as 70 percent or better, and 33 percent described them as "certain." That compares with a five-year survival rate for new firms in the 33 percent range. Couples about to be married estimated their chances of later divorcing at zero, even though most knew that the divorce rate is between 40 and 50 percent. Negotiators in final arbitrations overestimated the chance that their offer would be chosen by 15 percent.

Although most negotiators believe that they are more "fair" than average, in specific mediations they tend to overestimate their trial alternatives. People focus attention on assets while under-appreciating the issues on which their claim is weaker. A myopic focus on a case strength blurs focus on less favorable points. Focusing tightly on case merits runs the risk of undervaluing the transaction costs of continuing to trial.

However, while overconfidence is prevalent, it is not universal. A mediator cannot simply discount the value of each sides' offers by the same amount or proportion. One side might be well calibrated while the other is far off. What they can do is prepare alternative scenarios looking through different ends of the same telescope. Some scenarios will be rosy and others thorny, but together they are more likely to cover the range of potential outcomes – worst case to best. Requiring specific explanations for various outcomes can break single-minded focus on one. In the process, overconfidence can be reduced.

C. Perfect Information

Lawsuits sound better to lawyers and judges when they only hear one side. As information improves, the bloom may fade. People undervalue aspects of the situation of which they are relatively ignorant. As an example,

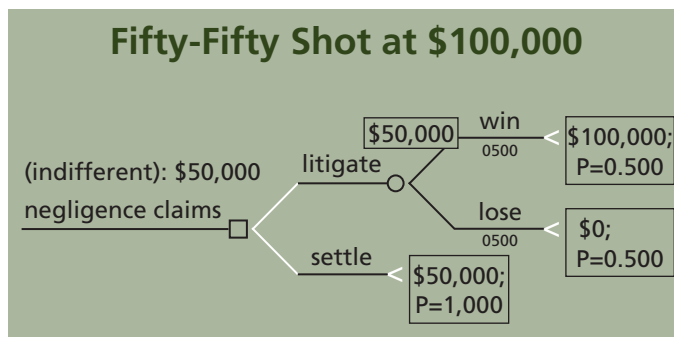
in one study, subjects given only half of the evidence in a case predicted the jury's decision with greater confidence than those who were given all of it. Not only were they more confident than those who were better informed, they were not able to adequately compensate when told that their evidence was lopsided.

While people want all available information before making decisions, experts and seasoned executives are accustomed to making decisions under uncertainty. Shell executives made billion-dollar investment decisions based on Joe Jaworski's hypothetical scenarios for the price of crude oil in 30 years. Business clients routinely take risks with limited information.

Lawyers are held to a different standard. Sixty percent certainty that a new product launch will be successful is considered great information. But missing 40 percent of the possible information in discovery may lead to a malpractice suit for a losing lawyer. Part of any litigator's analysis should include the amount her side is willing to spend to find out additional information. Since price and risk are inversely correlated, if one accepts the risk of limited information by adjusting price downward, he should balance the risk portion of the equation too. The alternative puts the lawyer in the uncomfortable position of leaving rocks unturned when dealing with a client who is comfortable navigating risk with less information.

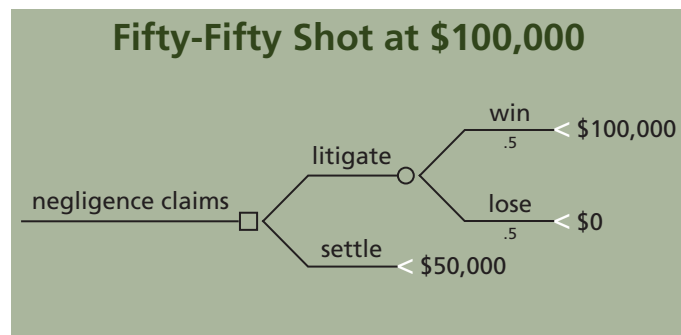
Decision trees can help determine how much to pay to close an informational gap. As one would expect, it has everything to do with the spread between the decision points ("litigate" v. "settle"). Assume a hypothetical driver involved in an automobile accident. Her (overly simplified) legal analysis tells us that her principal claim is negligence and that the range of remedies is \$0 to \$100,000. The probabilities are 50:50 for each outcome. A settlement offer is outstanding for the expected value: \$50,000. Graphically, the decision looks like this.

The economic analysis reflects the simplicity of the hypothetical – the plaintiff should be indifferent to the two options since they both equal \$50,000. But the gap is wide. So expected value may not be as helpful as improving the information she has available to make a dichotomous choice.



While decision points are rarely this elementary, plaintiff's decision is whether to accept the \$50,000 offer or spend more money discovering additional information that may improve her odds – and the offer. Since she stands to double her money, she may seek more information than she might want in a closer call. But how much will she and her lawyer spend to take a swing at the \$100,000 outcome?

Once plaintiff has a \$50,000 settlement offer (or reasonably expects one in that range), she is bracketed by a choice between a 50 percent chance of recovering \$100,000 and a sure \$50,000 settlement. Since the offer comes early, she must make that choice with less than perfect information. Of course, if she knew the jury was coming back in an hour with \$100,000 award, she would not settle ("win" fork). If she knew the jury was going to zero her out, she would take the offer. But her choices come in the real world. The amount she is willing to spend turns out to be half the spread between outcomes. We take the probabilities (50:50) and solve for the difference between the outcomes by examining each scenario. That means we set the "litigate" probabilities on the "win" and "lose" forks to 100:0. The "win" outcome is swinging for \$100,000 at trial and the "lose" outcome prefers to "settle" at \$50,000. The expected value for the new "win"/"lose" fork is \$75,000. Therefore, plaintiff should be unwilling to spend more than \$25,000 to obtain additional



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information to decide between a \$50,000 settlement offer and the chance of \$100,000 at trial. Of course, the information she discovers could also be damaging and push her closer to \$0.

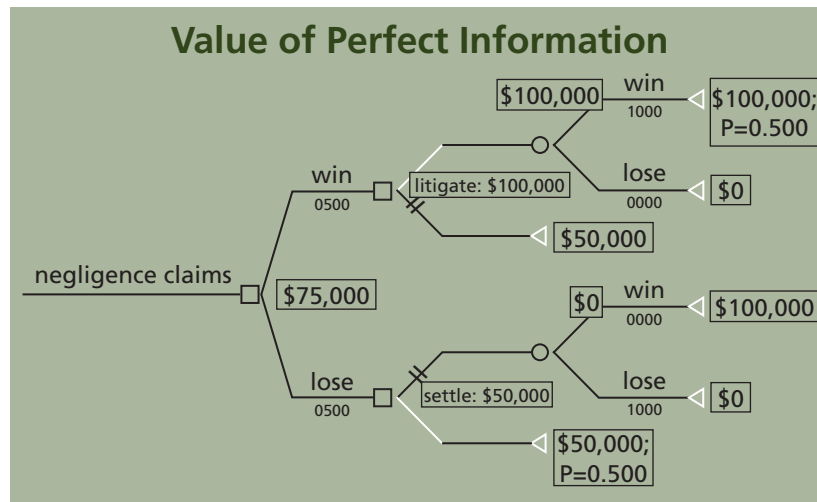
People often face these choices irrationally. Many will spend more to “increase the probability of a desirable outcome from 0.99 to 1 than from 0.80 to 0.85.” But that decision should be made wide-eyed. We all make decisions with less than perfect information. In litigation, we do well to balance price and risk.

D. Attribution Errors and Anger

The same psychological lenses that give us confidence also color our perception of others' conduct. The likelihood of settling a lawsuit is impacted by the parties' attitudes toward one another.

In his best-selling book *Blink: The Power of Thinking Without Thinking*, Malcolm Gladwell notes that “there are highly skilled doctors who get sued a lot and doctors who make lots of mistakes and never get sued.” The differentiator is not shoddy medical care, it's “something else” – “patients say that they were rushed or ignored or treated poorly” and it made them mad. “‘People just don't sue doctors they like,’ is how Alice Burkin, a leading medical malpractice lawyer, puts it.” Medical schools teach bedside manners and “[i]nsurers list a good bedside manner and a willingness to answer patient questions as effective ways to reduce the odds of facing a malpractice suit.”

Trial lawyers are equipped as repeat players to help clients factor this bias into their analyses too. Mediators can help by probing alternative explanations for conduct in an effort to debias models, if not actually reduce anger. In the absence of such explanations, parties fill in the blanks – and make attribution errors



in the process. In certain carefully chosen circumstances, apologies have been shown to reduce anger and increase the likelihood that a party will accept a settlement offer, but apology comes with risks.

One of the inherent strengths of economic analysis is that it focuses the parties

on the component parts of the problem at hand. That is not to suggest that there is not an important and cathartic role for emotions and venting in negotiation, even in commercial disputes. There certainly are. It is to say that when deciding to pass up an opportunity to negotiate an alternative to litigation, the parties should objectively evaluate the price they put on those emotions. “[G]ive me liberty or give me death!” carried a lot of meaning. It also clarified the price one patriot was willing to pay for his alternative. While the alternatives to inevitable human conflict are usually less stark, it is important for our analyses to contemplate the attributions we are likely making about our opponent, and the ones they are surely making to us.

E. Anchoring

As we move from dispute analysis to negotiation planning, we are often faced with making the first offer or awaiting one from the other side. That decision turns on a number of variables. Because the car dealer knows its real costs, it posts a sticker price that is intended to push negotiations above those costs. With less information, we may await our opponent's move. Their offer may telegraph informational asymmetries or align with our expectations. It may reflect overconfidence borne of ignorance and it might just be a strategic move. No matter whether they are rooted in reason or something else, first offers have power.

Psychologists call the phenomenon “anchoring” and have studied its influence on opening offers and

demands, insurance policy caps, statutory damage caps, negotiator aspirations, and other “first numbers.” And while training and information asymmetry certainly limit the impact of anchors, even “real estate agents’ judgments about the market price of homes were influenced by manipulations of the list prices.” Anchors function much like our “gut” reactions to the value of an object or lawsuit. The more relevant information our analytical mind has, the less we are swayed by an unreasonable anchor. Mistaken or misguided anchors can increase the odds of impasse and have unintended consequences.

Information quality and symmetry can have a clear impact on the weight of an anchor. Our legal and economic analyses increase our confidence in our valuations and thus the offers we make. These analyses place us in a better position to influence the negotiations by dropping an anchor or disregarding an unreasonable attempt to anchor by another.

F. Reactive Devaluation

There are certain things we just do not want to hear from our adversaries. In fact, the perceived source of a message has a lot to do with our perception of it. We discount whatever the other side offers, even if it’s favorable (“They wouldn’t have offered those terms if those terms strengthened our position relative to theirs.”). We also tend to reject or devalue whatever is freely available and strive for whatever is denied – the “grass is always greener on the other side of the fence.” Student assistants were given the option of cash or authorship credit by a professor writing an article. The students who were offered cash expressed a desire for authorship credit. Those offered authorship credit wanted cash.

A Cold War experiment quantified the magnitude of this bias. Soviet leader Gorbachev made a proposal to reduce nuclear warheads by one-half, followed by further reductions over time. Researchers attributed the proposal to President Reagan, a group of unknown strategists, and to Gorbachev himself. The surprise was not that the group reacted differently to the same proposal depending on its source, but the wide range of difference. When attributed to the U.S. President, 90 percent reacted favorably. That dropped marginally when attributed to the third-party (80 percent), but in half (44 percent) when attributed to the Soviet leader. It also comes as no surprise that the responsiveness of

Israeli student subjects to a proposed peace agreement between Israel and the Palestinians depends on whether they perceive the proposal as emanating from the Israeli government or the Palestinian Authority.

If we know that our proposals could be discounted by half just because of their source, we should consider the source in scenario planning. The arms control proposal from “unknown strategists” was viewed almost as favorably as the same one coming from the home team – nearly twice as favorably as when it came from the opponent. A mediator can accept one side’s demonization of the other and gently reframe the underlying issue as the parties work through various outcome scenarios.

G. Other Factors – And There Are Always Other Factors

There are always other factors impacting case valuation. One litigant may want to avoid the market or bankruptcy effects of an adverse verdict, the risk of a no-liability finding, or the distraction of litigation on management. Another may want to set precedent or ward off future claims with a consistent litigation strategy. Others may be intent on legislation or appellate decisions that change their opponents’ alternatives. We all use “rules of thumb” to short-circuit decisions. Sometimes they work, but if we overpay for something, we experience the “winner’s curse.” We perceive whatever we are selling to have a higher value than the buyer appreciates – the endowment effect.

Decision-makers allocate resources based on anticipated returns. Once we have thoroughly analyzed a case (or series of cases) from different perspectives, a decision-maker can better decide how much time and money she is willing to spend to make those points or avoid those costs. A hard-fought principle may be at stake – at least until an objective analysis places a dollar price tag on it. The existence of these and other psychological impediments to successful resolution call for objective models to test party aspirations. Mediators are well-positioned to check many of these biases as they nudge the focus back to future outcomes. The proper use of objective tools that continually redirect litigants to the problem rather than the personalities should only work to increase effectiveness.

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FAILURE TO AGREE ON ESSENTIAL TERM PRECLUDES JUDICIAL RULING THAT MEDIATING PARTIES ENTERED INTO A BINDING AGREEMENT

JM Agency, Inc. v. NAS Financial Service, Inc. (N.J. Super.A.D., August 3, 2007). 2007 WL 2215393

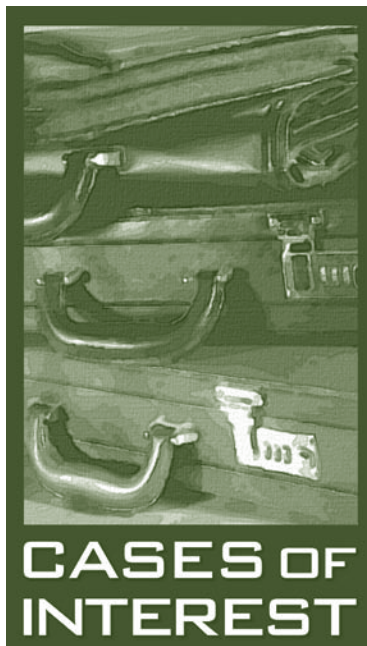
The JM Agency sued to recover a commission from NAS Financial. NAS moved for summary judgment which was granted in part. The parties went to mediation on the remaining claims. They reached agreement on most terms and but could not agree on the language for an admission of liability by NAS. NAS moved to enforce the settlement terms and the trial court granted the motion. JM appealed to the New Jersey Court of Appeals which reversed, finding that JM Agency never intended to be bound to an agreement without an admission of liability by NAS. The Court held that the trial judge erred in requiring JM to explain why it required the stipulation of liability and in ruling that the admission of liability was not an essential term.

PARTY ARGUMENT REDEFINES ARBITRAL AUTHORITY

Hutchinson v. Farm Family Casualty Ins. Co. (D. Conn., August 20, 2007). 2007 WL 2363318

Carl and Marie Hutchinson lost their daughter in an auto accident. The defendant driver and his insurance company paid out the limits of their policy. The Hutchinsons filed a claim against their insurer, Farm Family Casualty Insurance Company, for underinsured motorist coverage. When the amount FFCI paid was below the policy limits, the Hutchinsons sued. FFCI moved to compel arbitration pursuant to the FFCI contract. At arbitration, FFCI argued that the policy at issue reduced FFCI's obligation by the amount paid by the tortfeasor. The arbitration panel found that Maine law made the policy terms void and awarded damages of \$200,000 to Hutchinson. FFCI then appealed, arguing that the

arbitrators exceeded their authority in ruling on the conflict of law issue. The court found that both parties briefed the panel on choice of law and a fair hearing was held on the issue when both had a chance to argue. Therefore the arbitrators did not exceed their authority. *(One interesting note – there's nothing in the opinion to indicate why Maine law was involved. The original case was filed in Connecticut State Court and removed to Federal Court in Connecticut. Maine? Perhaps the place of the making of the insurance contract? Perhaps the arbitration was held there? There's nothing in the opinion that makes this clear. Farm Family is headquartered in New York State. If you know, drop us an email.)*



CLASS ARBITRATION WAIVER UNCONSCIONABLE

Shroyer v. New Cingular Wireless Services, Inc. (9th Cir., August 17, 2007). 2007 WL 2332068

Kenneth Shroyer filed a class action suit against Cingular for injuries resulting from the 2004 merger between Cingular and AT&T. Shroyer alleged that after the merger he had trouble with his AT&T service and was told by Cingular that his service would improve if he signed a new contract with Cingular. Shroyer assented to the terms of the new service

agreement via telephone keypad. The agreement contained a class arbitration waiver. After Shroyer filed the case, Cingular removed the case to district court under the Class Action Fairness Act. There, Cingular moved to compel arbitration and the motion was granted. Shroyer appealed to the Ninth Circuit Court of Appeal, which held that California law deems unconscionable class arbitration waivers in adhesion contracts in which disputes are predicted to involve small damages. The Court found the clause substantively and procedurally unconscionable and therefore invalid. The Court also held that the FAA did not pre-empt the Ninth Circuit's action because the unconscionability standard for arbitration was treated similarly to other contracts.

PERSONAL GUARANTY BINDS NON-PARTY TO ARBITRATION

Kayne v. Thomas Kinkade Co.
(11th Cir., October 3, 2007)

David Kayne, owner of Kayne Art Galleries, contracted with the Thomas Kinkade Company for exclusive rights to sell Kinkade paintings ("Painter of Light"). The contract contained an arbitration clause. The gallery also applied for a line of credit with Kinkade. The credit application contained an arbitration clause, as well as a personal guaranty which held Kayne responsible for the credit obligation, and which also contained an arbitration provision. After the gallery failed to make payments to Kinkade, a San Francisco panel of arbitrators awarded nearly \$600,000 to Kinkade. However, the U.S. District Court for the District of Northern California vacated the judgment against Kayne because he was not a party to the arbitration agreement between the gallery and Kinkade. Kinkade then initiated arbitration against Kayne in San Jose, California, and Kayne sued in District Court in Georgia to enjoin the arbitration. The Georgia District Court granted Kinkade's motion to dismiss. Kayne appealed, asserting the argument that prevailed in California. The Court of Appeal for the 11th Circuit ruled against Kayne, holding that the arbitration provision in the personal guarantee would be meaningless if it did not subject Kayne personally to arbitration.

MISREPRESENTATION FATAL TO SETTLEMENT AGREEMENT

Billy Barnes Enterprises, Inc. v. Williams
(Supreme Court of Alabama, September 28, 2007).

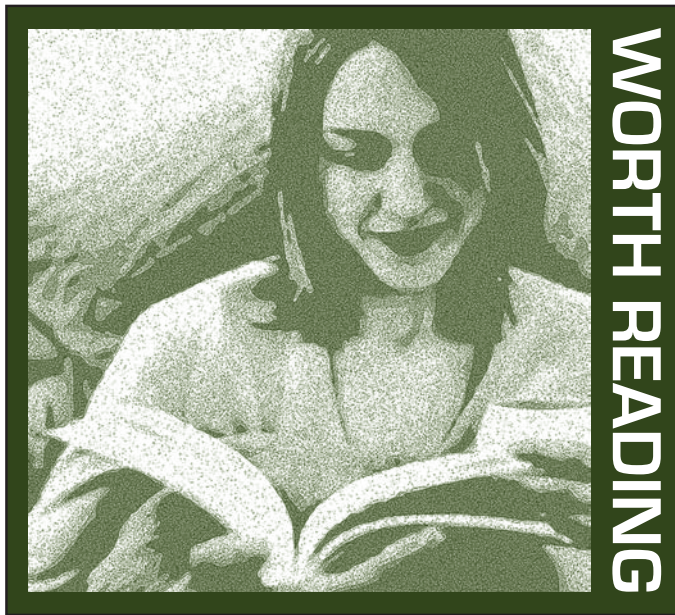
Herman Williams was injured when a truck failed to yield to the railroad crossing and collided with the train on which Williams was working. Williams sued Billy Barnes Enterprises, alleging that Barnes owned the truck. Williams said in a settlement conference that at the time of the accident he saw the Billy Barnes logo on the side of the truck that caused the accident. The parties reached a settlement agreement. Soon thereaf-

ter, Barnes received transcripts of a recording in which Williams stated he did not recognize the truck that hit the train. Barnes filed a motion to set aside the settlement agreement, arguing that he agreed to settle based on the fact that Williams had identified the truck at the time of the accident. The trial court denied the motion. The Supreme Court of Alabama reversed, reasoning that a settlement agreement is a contract between the parties and that under contract law, misrepresentation as to the identification of the truck was a fraud that was of sufficient seriousness to result in the setting aside of the settlement agreement.

SILENCE DOES NOT AMOUNT TO ASSENT TO ARBITRATE

MBNA America Bank N.A. v. Blanks (Court of Appeals of Arkansas, September 19, 2007).

MBNA amended their consumer credit card agreement to include an arbitration clause for any future claims. The amendment contained instructions requiring card members to respond in writing should they wish not to be subject to the arbitration clause. Deborah Blanks, an MBNA cardholder, did not respond in writing. Sometime later, a dispute arose between Blanks and MBNA. MBNA sent notice (by first class mail) to Blanks' last known address. MBNA appeared at arbitration and Blanks did not. MBNA was the beneficiary of an arbitral award, and they moved in Arkansas state court to confirm the award. Blanks moved to dismiss, arguing that there was no written agreement between the parties to arbitrate. MBNA argued that Blanks was time-barred from appealing as more than 90 days had passed since the award, and that was the time allotted in the Federal Arbitration Act. The trial court stated that it "just had a bad feeling about this" and refused to confirm the award. MBNA appealed. The Court of Appeal of Arkansas affirmed the lower court's refusal to confirm, holding that the three month time-limit in which to vacate, modify, or amend the arbitration agreement did not begin without evidence of a written agreement to arbitrate. Without proof of written agreement, Blanks was not time barred from challenging the arbitration award.



The Accidental Mind: How Brain Evolution Has Given Us Love, Memory, Dreams, and God

by David J. Linden
Belknap Harvard Press 2007

Reviewed by Richard Birke

Neuroscience is fascinating. Scientists are able to take videos of the human brain in action thanks to something called the fMRI – short for the “functional magnetic resonance imager,” and known to researchers simply as “the magnet.”

What happens in the magnet? Subjects are given stimuli, often in the form of video images or questions, and as the stimuli varies, the researchers can see whether the brain is constant or if it changes. If it does, they can see whether the differences are significant.

An example might make more sense. A psychologist at Emory, Drew Westen (who just wrote a book that might be reviewed in this column in the not-distant future), offered information about political candidates to subjects in the magnet. Lo and behold, when the information was positive and the candidate was favored by the subject, or when the information was negative and the candidate was disfavored, the brain reacted

mildly. When the information corroborated pre-existing beliefs, the brain was relaxed.

On the other hand, when the information ran counter to prior expectations (the info maligned the subject’s candidate or supported her opponent), the brain was excited – hotter and more reactive. Moreover, the part of the brain that lit up was a lower function part of the brain – less frontal lobe and more mid-brain. In other words, not only do we react more to disconfirming information, we react more primitively.

So the news is mixed. On the one hand, our brains (collectively, anyway) come up with amazing things like the fMRI. On the other hand, what the fMRI shows us is that we’re still not all that evolved. How is it that the feats of the mind are amazing, but the mind is not?

That’s where David Linden’s book comes in. Dr. Linden, Professor of Neuroscience at Johns Hopkins, has written *The Accidental Mind: How Brain Evolution Has Given Us Love, Memory, Dreams, and God*.

The book consists of nine chapters, but there are essentially two parts of the book. The first is the story of the brain – how it works, what its parts are, what they do – a concise and easy-to-read crash course in brain science. The second part follows the general trajectory of the first part (that the brain is imperfect in known ways) into specific areas – the ones in the title and a few others.

Dr. Linden’s story of the brain is basically this – if you think that the brain is a miraculous feat of engineering, you’d be wrong. The basic parts of the brain evolved a long time ago, and even if some of their functions aren’t helpful or necessary, they didn’t keep evolving. Instead, a new hunk of brain with different functions evolved and planted itself right on top of the old brain, like plopping a second scoop of ice cream on a cone. And when the first two proved insufficient for the rigors of modern life, a third developed. It was huge compared to the first two and it sits atop them like another scoop of ice cream.

Scoop one? The brainstem. The reptile brain. The brain that controls functions like breathing and temperature regulation. If you are one of those yogi masters that can raise or lower your temperature at will, you have tapped into your brainstem’s domain. But don’t get all high and mighty about it. Frogs have this much brain.

Scoop two? The midbrain. The cerebellum and cerebrum. These parts are what a rat has that allow the rat to discern between stimuli and choose a course of action. These parts allow some learning to occur. Pavlovian responses happen here. Bell rings, the dog salivates.

So did early man – the one with the flat head.

Scoop three? The frontal lobe. The squishy gray stuff. The mass that takes up so much space in the adult head that children are born with more post-natal development ahead of them than any other species. Why? If the brain were more developed, women would have to give birth to kids with teenager-sized heads. That would put a rapid end to population growth.

Why is the frontal lobe so big? Because it isn't very efficient. Instead of having one little fast microprocessor, it has billions and billions of tiny ones. The equivalent in modern terms would be like having a choice to upgrade from a Commodore 64 computer to a 2007 laptop and choosing instead to simply add more Commodore hardware.

Moreover, the brain uses electricity to do its work, but copper conducts electricity 1000 times faster than the brain!

For these and a raft of other reasons, Dr. Linden demonstrates that the brain is, in his words, a kludge. He analogizes to the iPod. It's pretty slick, no doubt. But if you welded it to an eight-track player, you wouldn't sell many. And that's our brain. A huge iPod welded to an eight-track, and then duct-taped to a gramophone.

Linden is more articulate and thorough than is my two-page reduction, and he is at once funny, clear and accurate. He tells entertaining stories about twins, lobotomies, freak accidents, laboratory experiments and turns on a dime to talk about axons, dendrites and glutamate receptor proteins. If you don't read past chapter three, the book will have been a valuable

and entertaining addition to your education about the component parts of the brain.

But you won't stop at chapter three because that is where the book starts to get really interesting.

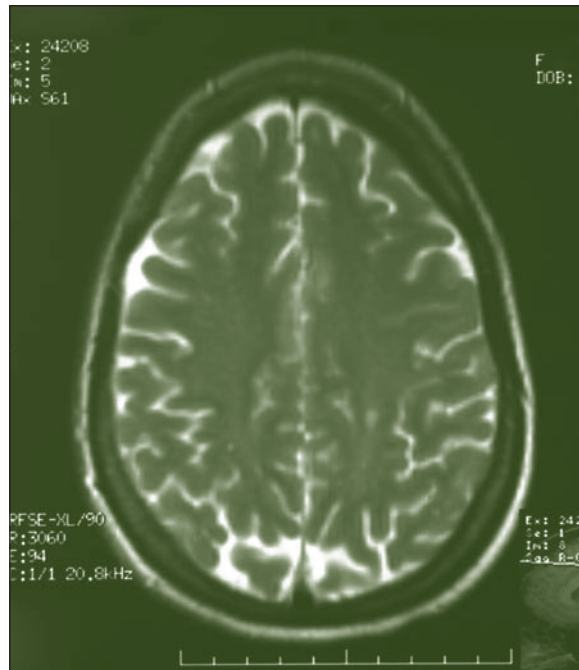
In chapter four, Sensation and Emotion, Linden discusses the way the brain processes information. A sensation only becomes observed when the electrical level surpasses a certain point (otherwise we'd all die instantly of overstimulation), and not only does the body perceive stimuli in somewhat variable ways, the brain suppresses information. For example, when you are walking down the street and your pants leg brushes against your skin, you don't stop and take notice. But

if you were sitting at your desk and your corduroys started to rustle in the absence of any motion, you might just pay attention. As the body takes part in activities, a part of the brain decides what stimuli are to be expected, and it codes those as "not requiring attention."

Moreover, you have faster parts of your brain and slower parts. We are quicker with location than specification – "where" is faster than "what." So if you jump out of the path of a large oncoming vehicle, you notice first that the vehicle is coming toward you rapidly (a survival instinct if ever one there was) and only later (milliseconds later, but later nonetheless) do you notice that the vehicle is a

blue Ford pickup truck. But the brain tricks us! We perceive the information arriving to the mind at the same time when it doesn't.

This remarkable trick of filling in gaps extends to vision as well. Our eyes are much more sensitive to light and data in the middle than on the periphery, so we scan the horizon to focus straight at the most important part of the landscape. But when we scan, the eyes move faster than the brain can process. We actually take lots



What the fMRI shows us is that we're still not all that evolved.

Worth Reading *Continued from Page 9*

of stutter step pictures with our visual camera, then our brain knits the gaps together into a seamless picture. These are called “saccades.” (Word for the day.)

Linden discusses a variety of other stimuli variations, including synesthesia – hearing in color, smelling sounds...does it seem crazy? There have been experiments with people who claim to see numbers in color. When shown a black and white page of randomly printed numbers and asked whether there are more 5’s or 9’s or fewer 6’s or 2’s, the “normal brained” people took a very long time counting. The synesthetes did the same task in a second or two. And the various forms of synesthesia are consistent and stable over decades.

The point? The kludgy nature of the brain impacts input in a particular way. Retrieval is no better.

In chapter five, Linden covers memory and recall. The ability to recall information is based, in part, on how stimulating the memory is. And that’s an eclectic formula. Do you remember where you were on the morning of September 11, 2000? I’d guess you have a clear memory of your location the following year. You can probably remember where you were before the day turned from ordinary to historic – so the vividness of the memory of your pre-attack awareness is based on information that came to light only later in the morning.

We misattribute. We are suggestible. And we are biased. Our selective memory is a product – in part – of something called synaptic and intrinsic modulation. I’ll let you pick up the book and read this part!

All this is to say that the brain compensates for our makeup with a lot of slick data manipulation. The variations in experience and in the kinds of data that are input at different developmental times explains a lot about personality difference, but at the same time

the similarities in brain makeup explain many social phenomena.

In chapter six, *Love and Sex*, Linden makes the bold statement that “our normative human sexual practices follow directly from inelegant brain design....Why do humans have concealed ovulation and recreational sex?” (Two aspects of sexual behavior that set us apart from virtually all other species) Well...the concealed ovulation part keeps the male around. The biological imperative to reproduce efficiently would normally induce in males a straying behavior, but because ovulation is concealed, the most efficient strategy is to have only

one partner. And after the baby is born, recreational sex helps keep the man around as well. Why does this matter? Because unlike female orangutans who can expect their offspring to fend pretty well for themselves at a tender age, human kids take a lot more parental time and attention. If it weren’t for the fact that brains have to do so much development after birth, this whole scheme might not have evolved.

Thus, our sexual behavior is partially a result of the huge size of our brains. The computer world has gone from room-sized computers to Blackberry-sized computers in less than half a century. Our brains haven’t enjoyed a similar reduction in size/increase in efficiency...so naturally we have concealed ovulation and recreational sex. Unlike your Blackberry, which has neither.

This chapter is full of fascinating information on twins and homosexual behavior and attacks the question of whether homosexuality is nature or nurture. Probably both, says Linden, as there are studies that support biological factors and social factors as well. But nothing is fully conclusive – although statistically, if your sibling is gay, your chances of being gay are much higher than if your sibs are all straight. And if you are gay, you have



We take lots of stutter step pictures with our visual camera and our brain knits the gaps together into a seamless picture.

less INAH3 in your brain. You'll have to read the book to find out what that means.

Enough about sex and love (Linden has lots more to say) – let's look at dreams and sleep. Did you know that sleep researchers have found that 80% of reported dreams are negative? They speculate that one of two things is true – either we dream negative dreams more than we dream happy ones – or the scary bad ones wake us up and we remember them while the sweet ones keep us asleep and are washed away in the emergence out of REM state. Linden details the stages of sleep and the importance of each to normal functioning. Did you know that you can die of lack of sleep? So when you say to your kids "You nearly killed me when you were little," you can say it with a grain of truth. But they'd have had to keep you up for several weeks.

More importantly, we figure stuff out when we sleep. The idea of "sleep on it and you'll have your answer in the morning" is not just a suggestion to calm down. The stages of sleep are closely correlated with creating and embedding memory. You really do a different kind of problem-solving when you are asleep – but it has to be REM sleep – and you can only do REM when lying flat! Think of that when you are snoozing on a plane – it's sleep, but it isn't "figure out what to do" sleep.

There are stages of sleep and associated kinds of dreams (stage one – something you did recently in snippets; stage two – some-

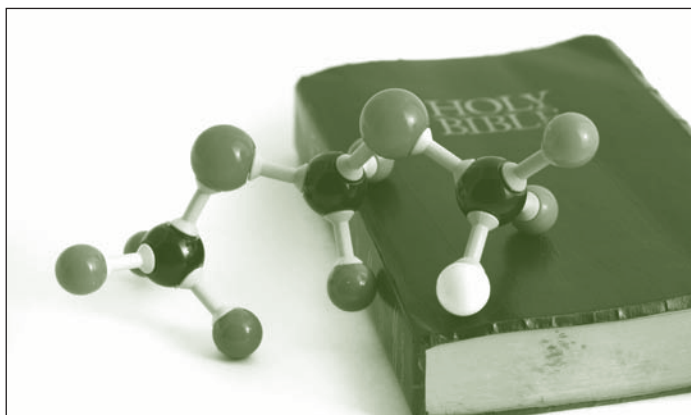


If brains didn't have to develop so much after birth, our whole reproductive scheme might not have evolved.

tory or tactile?

Thanks to the fMRI, we now know much about what parts of the brain are triggered during REM sleep and what other activities are associated with those brain components. Putting the two together, researchers have found remarkable connections between the way our brain works and the way we dream.

In the next chapter, *The Religious Impulse*, Linden takes on the creators of Intelligent Design. Naturally, the author of a book named *The Accidental Mind* and who calls the brain a kludge is not a big fan of intelligent design. Linden discusses the case against intel-



Linden discusses the case against intelligent design from scientific theory and brain science standpoints.

thing real and unsolved like working on a problem at work; stage three – riding a roller coaster down an endless track in a place you've never been but that feels familiar and the track turns into a road and you are driving in a chariot and the horse turns into George Washington and he tries to bite you...).

Why is the stage three characterized by motion, by illogic, by fantasy, and why is the dream stimuli visual as opposed to audi-

torial or tactile? intelligent design both from a scientific theory standpoint (are there refutable hypotheses?) and from a brain science standpoint. Linden points to various parts of brain theory and knits them together to formulate a theory of why the human brain is a "believing" brain. The idea relates to the way the left and right cortexes work together. Left cortex narrative creation takes right

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cortex facts and makes cognitive, unnatural leaps and conscious leaps through dreams and recollections.

The argument is fascinating. And in part, satisfying, because Linden admits that nothing we know about the brain can help us answer the question of whether a higher power exists. Linden's claim is more modest – the reason why Christians, Muslims, Jews, Buddhists and tribal men who talk to trees tend to find and hold a faith has some root in the fact that our brains make sense of so much nonsense (from optical illusions to dreams to random overstimulation), that the brain tries to make sense of the whole painful and complex event called life. And this idea, that “we all believe in some things we cannot prove” (the existence of the international space station – I've never seen it, but I believe it's there), fall into two categories. The falsifiable are science, and the others are faith. “These two modes of thought are not mutually exclusive as [some fundamentalists and some scientists] would have you believe. Rather, they are two branches of the same cognitive stream. Our brains have evolved to make us believers.”

This is a fun and provocative book. Linden waltzes between humor and science, weaving together a coherent and persuasive argument that the products of the mind are much more amazing than the brain. He tackles sensitive subjects without a political ax to grind. He writes as well as a journalist but he is clearly always writing as a scientist.

But what does all this have to do with dispute resolution? When I mediate, I strive to help parties move toward settlement. Every tool helps and Linden offers much to a mediator about how the brain works while it is deciding – recognizing that sending the parties out to get a good night's sleep can be helpful; understanding why there hits a point at which information overload is likely to kick in; learning how memory can be distorted to create false confidence; divining how parties can have such different perceptions of the same situation; figuring out helpful and unhelpful responses to behavior, and more. Given that I possess the same kind of kludgy “Accidental Mind” as my parties, I need all the help I can get. If you are like me with a brain that sometimes feels like it works about as well as three scoops of ice cream, you'll find this book well WORTH READING.

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