

Introduction

1. Guthrie, Rachlinski & Wistrich, *Inside the Judicial Mind*, 86 Cornell L. Rev. 778 (2000-2001)

In one early study of anchoring, Professors Amos Tversky and Daniel Kahneman asked participants to estimate the percentage of African countries in the United Nations. Before asking for this estimate, they informed the participants that the number was either higher or lower than a numerical value identified by the spin of a "wheel of fortune." Tversky and Kahneman had secretly rigged this "wheel of fortune" to stop either on ten or sixty-five. When the wheel landed on ten, participants provided a median estimate of 25%; when the wheel landed on sixty-five, participants provided a median estimate of 45%. Even though the initial values were clearly irrelevant to the correct answer, the initial values had a pronounced impact on the participants' responses.

2. Rabbi Daniel Z. Feldman, *False Facts and True Rumors*, pg. 68

This [anchoring] effect is blamed for all kinds of irrational impacts on thinking. For example, participants in a wine auction who were asked to write down the last two digits of their Social Security numbers before bidding were found to bid higher numbers if the Social Security numbers were higher.

3. Clay Jones, *Outcome Bias in Clinical Decision-Making*, Science-Based Medicine Dec. '14

Most doctors have their own personal lucky catch or "great call" story, or at least can easily recount one that was passed down to them at some point in their career. A patient presents with an unusual symptom or syndrome, and in a seeming flash of inspiration a particular lab or imaging modality is requested that reveals the rare or unlikely diagnosis. What tends to follow is some degree of awe at the clinical acumen of the ordering physician, and in some cases more than a bit of hindsight bias. ("Well of course that's what the guy had! The clues were right in front of them the whole time.")

In reality, medical mystery-type lucky catches like this are the exception rather than the norm. The much more common version, but one less likely to achieve legend status in a physician's personal narrative, tends to occur when we've dusted off the diagnostic shotgun. Shotguns disperse multiple pellets in a wide pattern in order to increase the likelihood of making contact with the target. So does an ordering physician when they request a large number of tests thoughtlessly.

4. Professor Daniel Kahneman, *Thinking, Fast and Slow*, pp. 41-43

A series of surprising experiments by the psychologist Roy Baumeister and his colleagues has shown conclusively that all variants of voluntary effort - cognitive, emotional, or physical - draw at least partly on a shared pool of mental energy. Their experiments involve successive rather than simultaneous tasks....

The most surprising discovery made by Baumeister's group shows, as he puts it, that the idea of mental energy is more than a mere metaphor. The nervous system consumes more glucose than most other parts of the body, and effortful mental activity appears to be especially expensive in the currency of glucose. When you are actively involved in difficult cognitive reasoning or engaged in a task that requires self-control, your blood glucose level drops.

What are our biases?

5. Genesis 42:22, 37:21-22

And Reuven responded to them, "Didn't I tell you, 'Do not sin against the child,' and you did not listen? Now, his blood is demanded."

And Reuven heard and he saved [Joseph] from their hands, saying, "We shall not kill him." And Reuven said to them, "Do not spill blood! Throw him into the pit in the wilderness, and do not send a hand against him." [This was] in order to save him from their hands, to restore him to their father.

6. Clay Jones, *Outcome Bias in Clinical Decision-Making*, Science-Based Medicine Dec. '14

Outcome bias kicks in when we look back at the decisions that occurred prior to the lucky catch or positive outcome and judge them more positively, even when the care in question was of poor quality. We often forget or even fail to acknowledge when a test or treatment had an unfavorable risk versus benefit ratio. This bias can reinforce the drive to perform more unnecessary testing in the future, not only by the directly-involved parties but also by any impressionable learners hearing the tale in the years to come.

7. Rabbi Yisrael Meir Kagan (19th-20th century Poland), Chafetz Chaim, Laws of Lashon HaRa 9:1

One who praises another in front of his enemies is guilty of "dust of harmful speech", because this causes them to speak degradingly of him.

8. Dr. Jesse Pines, *Confirmation Bias in Emergency Medicine*, Academic Emergency Medicine 2006; 13:90-94
Mr. W is a 51-year-old diabetic male who presents to the emergency department (ED) with a seven-day history of lumbar lower back pain that occurred immediately after lifting a heavy box at work. He is triaged at 2:00 AM and is seen by Dr. J at 2:45 AM. He reports radiation of pain down the front of his leg and denies trauma, and bowel or bladder abnormalities... He reports that he has been unable to work all week and needs a written excuse for his boss.

The nurse approaches the emergency physician (EP) and states, "Mr. W is here again. He is here all the time requesting pain medicine and work excuses for lower back pain. He was even here yesterday and was seen by your colleague, Dr. S, [was] diagnosed as having a muscle strain or a herniated disk, [was] given two Percocet orally, and [was] told to follow up with his primary physician. Let's get him out of here."...

9. Sigall and Ostrove, *Beautiful but Dangerous*, J. of Personality and Social Psychology 31:3 (1975)

The physical attractiveness of a criminal defendant (attractive, unattractive, no information) and the nature of the crime (attractiveness-related, attractiveness-unrelated) were varied in a factorial design. After reading one of the case accounts, subjects sentenced the defendant to a term of imprisonment. An interaction was predicted: When the crime was unrelated to attractiveness (burglary), subjects would assign more lenient sentences to the attractive defendant than to the unattractive defendant; when the offense was attractiveness-related (swindle), the attractive defendant would receive harsher treatment. The results confirmed the predictions, thereby supporting a cognitive explanation for the relationship between the physical attractiveness of defendants and the nature of the judgments made against them.

10. Rabbi Joseph Caro (16th century Israel), Code of Jewish Law, Choshen Mishpat 7:7

One may not judge a friend, even where he is not a *shushvin* or his closest friend, or one he hates, even where he is not an enemy and he does not seek to harm him. The litigants must be equal in the eyes and hearts of the judges.

11. Talmud, Sanhedrin 17a

Rav Kahana said: If the court rules unanimously to convict, we free him. Why? Since we have learned that we need to wait overnight to find reasons to exonerate him; these judges will never see on his behalf.

12. Talmud, Ketuvot 105b

What is a verbal bribe?

- Like when Shemuel crossed a river, and someone extended his hand to him. Shemuel asked, "Why are you here?" He replied, "I have litigation." Shemuel said, "I am disqualified to judge for you."
- Ameimar was judging, when a feather landed on his head. Someone removed it. Ameimar asked, "Why are you here?" He replied, "I have litigation." Ameimar said, "I am disqualified to judge for you."
- Mar Ukva spat before himself, and someone covered it. Mar Ukva asked, "Why are you here?" He replied, "I have litigation." Mar Ukva said, "I am disqualified to judge for you."

13. Talmud, Bava Kama 50a

Anyone who says G-d is forgiving – his life will be 'forgiven'.

14. Ian Weinstein, *Don't Believe Everything You Think*, 8 Clinical L. Rev. 783 (2002-2003)

The problem of egocentric bias is our tendency to think many of our own common, ordinary skills and experiences are exceptional...

I had replied, "I'm not sure the jury will see it that way, but there is still a lot we don't know about the evidence." "I know," he responded, smiling, "But I know myself. People like me. No jury will convict me. They don't convict people they like, do they?"

15. Cohen & Knetsch, *Judicial Choice*, Osgoode Hall Law J. 30:3 (1992)

A further illustration of the differing valuations of gains and losses is provided by responses to recent automobile insurance legislation in two American states. In both jurisdictions people are given a choice between cheaper policies, which limit rights to subsequent recovery of further damages, and a more expensive policy permitting such actions. Importantly, the default option differs: the reduced rights policy is offered in New Jersey unless it is given up; and full rights policy is given in Pennsylvania unless the less expensive option is specified. Given the minimal costs in both states of choosing either option and the large amounts of money at issue, the results have been dramatic. At last count over 70 per cent of New Jersey automobile owners have adopted the reduced rights policy, but fewer than 25 per cent of Pennsylvanians have done so.

16. Pirkei Avot 2

And don't say, "When I am free I will learn," lest you never become free.

17. Guthrie, Rachlinski & Wistrich, *Inside the Judicial Mind*, 86 Cornell L. Rev. 778 (2000-2001)

Framing also has influenced the development of legal doctrine. When ownership of a commodity is in doubt, the courts traditionally favor those who hold possession of the good—even when possession is arbitrary. For example, if a seller contracts to sell a car to two different buyers, courts will often award permanent ownership to the party holding possession at the time the suit is brought.

How can we reduce the influence of cognitive bias?

18. Rabbi Daniel Z. Feldman, *False Facts and True Rumors*, pg. 77

Attempting to correct for these biases, while a necessary first step, is only helpful to a point. Another frailty of the human psyche is the lack of awareness as to when these biases are present, even those that are theoretically known. Our awareness is itself blinded by bias, known, appropriately, as "bias bias." In the words of Dr. Robert A. Burton, "Our mental limitations prevent us from accepting our mental limitations."

19. Danziger, Levav, Avnaim-Pesso, *Extraneous Factors in Judicial Decisions*, Proc Natl Acad Sci U S A. 2011 Apr 26;108(17):6889-92

We test the common caricature of realism that justice is "what the judge ate for breakfast" in sequential parole decisions made by experienced judges. We record the judges' two daily food breaks, which result in segmenting the deliberations of the day into three distinct "decision sessions." We find that the percentage of favorable rulings drops gradually from 65% to nearly zero within each decision session and returns abruptly to 65% after a break.

20. Dr. Pat Croskerry, *Diagnostic Failure: A Cognitive and Affective Approach*, pg. 248

The brain functions at its best when it is well rested. Fatigue may occur independently of sleep deprivation and sleep debt, but these invariably lead to fatigue. Optimal perception, attention, vigilance, memory, and reasoning all depend on being well-rested and having an adequate amount of sleep. Yet, long hours of work, sleep deprivation, and an accumulated sleep debt are common in the medical workplace. Generally, the longer people

stay awake, the sleepier they become, and the more their cognitive and psychomotor performance is impaired. Clinical decisionmaking reaches its nadir at about 3–4 a.m.; cognitive performance at this time is equivalent to being legally intoxicated.

21. Rambam (12th century Egypt), Mishneh Torah, Hilchot Deiot 4:1

Having a healthy, whole body is from the paths of Gd, as one can neither understand nor know anything about Gd when ill. Therefore, one must distance himself from anything which damages the body, and one must accustom himself to behaviours which increase health and strength...

22. Dr. Pat Croskerry, *Diagnostic Failure: A Cognitive and Affective Approach*, pg. 250

Develop mental rehearsal, “cognitive walkthrough” strategies for specific clinical scenarios to allow CDRs and ADRs to be made and their consequences to be observed. Construct new scenarios or clinical training videos contrasting incorrect (biased) approaches with the correct (debiased) approach.

23. Alan Jacobs, *The Value of Making Reading Hard*, The Atlantic Feb. '12

I think about the value of cognitive strain, or as I sometimes call it cognitive *friction*, when I'm annotating texts. As many people have noted, today's e-ink readers allow annotation – highlighting and commenting – but in a pretty kludgy fashion. It can take a good many clicks to get a simple job of highlighting done. By contrast, touch-sensitive tablets like the iPad and the Kindle Fire make highlighting very easy: you just draw your finger across the text you want to highlight, and there: you're done. Nice. But I prefer the kludge. Why? Because I remember what I'm reading better if the process of highlighting is a tad slow.

24. Dr. Pat Croskerry, *Diagnostic Failure: A Cognitive and Affective Approach*, pg. 249

The top half of the table includes particular cognitive strategies that can undo biases—the “cognitive pills for cognitive ills.” Principle among them is the strategy of metacognition. This involves being able to step back from the immediate pull of the situation to momentarily reflect on what is going on. In human development, it is a feature of mental maturation, and once adulthood is attained, it is the ability to disengage, reflect, and reconsider before action.

25. Pirkei Avot, Chapter 2

And calculate the loss incurred for a mitzvah opposite its reward, and the reward of a sin opposite its loss.

26. Dr. Pat Croskerry, *Diagnostic Failure: A Cognitive and Affective Approach*, pp. 250-251

[P]erform a cognitive and affective autopsy, a form of cognitive and affective root cause analysis, as soon as possible after the event. The physician should perform this autopsy when well-rested and after having an adequate amount of sleep. There is usually a rapid decay of detail—especially when the event has been an unpleasant experience—and, therefore, it is important to go through a process of active recall of every possible aspect of the case, however trivial they might appear...