

## Bias from Pavlovian Association

This article is part of a [multi-part series](#) on human misjudgment by Phil Ordway, managing principal of [Anabatic Investment Partners](#).

Bias from Pavlovian association is misconstruing past correlation as a reliable bias for decision making.

“So the dog salivated when the bell rang – so what? The truth is that it is an enormously powerful force in the life of all of us. We wouldn’t have money without secondary reinforcement...Three-quarters of advertising works on pure Pavlov.” –Charlie Munger

“Coca-Cola wants to be associated with every wonderful image: heroics in the Olympics, wonderful music, you name it. They don’t want to be associated with presidents’ funerals and so forth.”

Persian Messenger Syndrome – “The Persians really did kill the messenger who brought the bad news. You think that is dead? I mean you should’ve seen Bill Paley in his last 20 years. He didn’t hear one damn thing he didn’t want to hear. People knew that it was bad for the messenger to bring Bill Paley things he didn’t want to hear. Well that means that the leader gets in a cocoon of unreality, and this is a great big enterprise, and boy, did he make some dumb decisions in the last 20 years.”

In economics, we’re all taught about supply and demand, but there is also the counterintuitive result of getting more demand after raising the price, based on a Pavlovian association in the face of information inefficiency.

Bias from operant conditioning (e.g., giving the dog a reward, or Skinner’s ability to create superstitious pigeons) is also a factor.

Westinghouse lost a few billion dollars lending to hotel developers under the influence of “slick salesmen” with incentive-caused bias. It was a fiasco enabled by loose accounting standards which showed wonderful financial results in the initial phase of every transaction – an absolute sin. Joe Jett and Kidder Peabody also fell prey to this phenomenon.

### Update

New examples include the association of military service and impressive music played by military bands; Napoleon and Hitler’s ill-advised extrapolation of prior military success in launching a campaign in Russia; a casino gambler on a hot streak; or an investor who “gets lucky in an odds-against venture headed by an untalented friend. So influenced, he tries again what worked before – with terrible results.”

“The proper antidotes to being made such a patsy by past success are (1) to carefully examine each past success, looking for accidental, noncausative factors associated with such success that will tend to mislead as one appraises odds implicit in a proposed new undertaking and (2) to look for dangerous aspects of the new undertaking that were not present when past success occurred.”

Persian messenger syndrome is also alive and well. There, the antidote is Berkshire's prescription to "always tell us the bad news promptly. It is on the good news that can wait." Dick Kovacevich of Wells Fargo offers another example. "Unlike Kovacevich, who would tell his executives, 'The only thing I want to hear is bad news,' Stumpf seemed to be proud that the culture was one of 'Minnesota nice.' He 'was not perceived within Wells Fargo as someone who wanted to hear bad news or deal with conflict,' noted the board report."<sup>[18]</sup>

More prosaic problems arise when Persian messenger syndrome is a legitimate threat to someone's career or self-interest, combining with incentive-caused bias in catastrophic fashion. Munger cites the examples of union negotiators (leading to "many tragedies in labor relations") and lawyers who, "knowing their clients will hate them if they recommend an unwelcome but wise settlement, will carry on to disaster."

Another "serious clump of bad thinking caused by mere association lies in the common use of classification stereotypes." Munger cites the "sort of wrong thinking that is both natural and common" in ageism and sexism.

"It is frightening to think that you might not know something, but more frightening to think that by and large the world is run by people who have faith that they know exactly what is going on." - Amos Tversky

Denial seems to be having a resurgence. "Truthiness" and "alternative facts" and "fake news" may be obvious tools. A more vivid example comes from Daryl Morey, the psychologically astute general manager of the Houston Rockets and something of a Billy Beane *Moneyball*-style manager in the NBA. Morey noted, after several years of observation, that extremely tall people had an unusual capacity to charm.

"I don't know if it's like the fat kid on the playground or what.' The trouble wasn't the charm but what the charm might mask; addictions, personality disorders, injuries, a deep disinterest in hard work. The bigs could bring you to tears with their story about their love and the game and the hardship they had overcome to play it. They all have a story.' And it was hard not to grow attached to it. It was hard not to use it to create in your mind a clear picture of future NBA success. But Daryl Morey believed - if he believed in anything - in taking a statistically based approach to decision making. 'Your mind needs to be in a constant state of defense against all this crap that is trying to mislead you.' Heeding the career risk that was likely if he never interviewed a player who turned into a disaster, Morey didn't eliminate qualitative interviews but he did move toward quantitative statistical models to evaluate players. He also abhorred certainty and suggested a "new definition of the nerd: a person who knows his own mind well enough to distrust it."

After fits and starts in building his own framework for evaluating players, one key tweak Dorsey made was to ban nicknames. That idea came after his staff started calling a certain prospect "Man Boobs" after seeing pictures of him shirtless during their pre-draft scouting. The scouts became dismissive of him and passed on the chance to draft him. The player - Marc Gasol - went on to be quite valuable and the mistake cost the Rockets dearly.

Morey also tried to eliminate the mis-weighting of vivid evidence from in-person tryouts, from "confirmation bias" - really first-conclusion bias - and liking tendency, which was especially prevalent when scouts compared prospects to themselves. Importantly, Morey also "forbid all intraracial comparison. 'We've said, 'If you want to compare this player to another player,

you can only do it if they are a different race.’ [And] a funny thing happened when you forced people to cross racial lines in the minds: They cased to see analogies. Their minds resisted the leap. ‘You just don’t see it,’ said Morey.” The development and success of Jeremy Lin – a Chinese-American player from Harvard with roughly zero comparable players in NBA history – played a big role in this thought, especially since Morey’s modeled coveted Lin but Morey “chickened out” when he had the chance to draft him.<sup>[19]</sup>

A corollary to association is the representativeness heuristic., which is often used when making judgment under uncertainty. Tversky and Kahneman defined representativeness as “the degree to which [an event] (i) is similar in essential characteristics to its parent population, and (ii) reflects the salient features of the process by which it is generated.”<sup>[20]</sup> The problem, of course, is that the representative examples are easy to access but may or may not reflect the base rate.

“Steve the librarian” sets the stage. “As you consider the next question, please assume that Steve was selected at random from a representative sample. An individual has been described by a neighbor as follows: ‘Steve is very shy and withdrawn, invariably helpful but with little interest in people or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail.’ Is Steve more likely to be a librarian or a farmer?

“The resemblance of Steve’s personality to that of a stereotypical librarian strikes everyone immediately, but equally relevant statistical considerations are almost always ignored. Did it occur to you that there are more than 20 male farmers for each male librarian in the United States? Because there are so many more farmers, it is almost certain that more ‘meek and tidy’ souls will be found on tractors than at library information desks. However, we found that participants ignored the relevant statistics and relied exclusively on resemblance...as a simplifying heuristic.”

Consider their classic example of “Tom W.” Asked to guess Tom’s field of graduate school out of nine choices, you should jump toward the base rate just as you’d want to know how many marbles of a certain color are in a jar. Participants were placed into three groups and asked to rank the likelihood of Tom as a graduate student in one of nine fields: one group was nudged toward the base rate, one was given a personality sketch, and one was given the personality sketch with the added information that the sketch was done by a trained psychologist. The results were strongly driven by how representativeness or similarity, ignoring the base rate, even among brilliant graduate students in psychology who were working on the study with Kahneman and Tversky!

Or consider their classic fictitious subject “Linda.” “Amos and I made up the Linda problem to provide conclusive evidence of the role of heuristics in judgment and of their incompatibility with logic.” Linda is adaptable to the times, but the original description said “Linda is 31 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 anti-nuclear demonstrations. Which is more probable? 1. Linda is a bank teller. 2. Linda is a bank teller and is active in the feminist movement.” Later updates offered Linda as a teacher, a bookstore clerk who takes yoga, active in the feminist movement, a bank teller, an insurance salesperson, etc. “Even in the Facebook era, it is easy to guess the almost perfect consensus of judgements: Linda is a very good fit for an active feminist, a fairly good fit for someone who works in a bookstore and take yoga classes—and a very poor fit for a bank teller or an insurance salesperson.”

On a related note, here's a thought experiment about two new investment funds being launched at the same time. Firm A is being launched as a one-man shop with no back office in a mid-sized city. The manager is clearly very bright, but he quit an Ivy League school to finish college at a state university near home and he was rejected by Harvard Business School. He did pursue his graduate education at an excellent Ivy League business school, and after a stint as a broker went on to have a very successful two-year run at a reputable fund. He's moderately rich but has invested only \$1,000 of his own money in the fund. He doesn't have a specialty or a focus other than general value investing. He is in his 20s and has no experience as a portfolio manager. He refuses to provide any information about his holdings, and he reports performance only once per year.

Firm B is run by a team of exceptionally brilliant people. They have a collective IQ that is probably among the highest of any group in the world. They are swimming in prestigious degrees and world-renowned awards. The strategy is cutting edge, specialized, and unique. They employ the best quantitative methods and risk systems. They have well over a decade of experience at a world-class, name-brand firm, and they are enormously rich. They are also putting ~100% of their own net worth into the fund.

Firm A, of course, is the Buffett Partnerships, and Firm B is Long Term Capital Management.<sup>[21]</sup>

Another related topic in representativeness is the "clustering illusion," as discussed by Gilovich in *How We Know What Isn't So*.<sup>[22]</sup> "Why, beyond noting that nature abhors a vacuum, do people fall prey to the clustering illusion?" Representativeness. The 2004 and 2005 hurricane seasons, the "hot hand" issue in basketball, a string of good returns by a fund manager - everything needs to be considered in this regard. And as always, our biggest problem takes from extending a good idea too far. Gilovich notes "it is the overapplication of representativeness that gets us into trouble."

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Munger expanded greatly on the subject of association in a subsequent talk given at UC Santa Barbara in 2003:<sup>[23]</sup>

*I have posed at two different business schools the following problem. I say, "You have studied supply and demand curves. You have learned that when you raise the price, ordinarily the volume you can sell goes down, and when you reduce the price, the volume you can sell goes up. Is that right? That's what you've learned?" They all nod yes. And I say, "Now tell me several instances when, if you want the physical volume to go up, the correct answer is to increase the price?" And there's this long and ghastly pause. And finally, in each of the two business schools in which I've tried this, maybe one person in fifty could name one instance. They come up with the idea that occasionally a higher price acts as a rough indicator of quality and thereby increases sales volumes.*

*This happened in the case of my friend Bill Ballhaus. When he was head of Beckman Instruments it produced some complicated product where if it failed it caused enormous damage to the purchaser. It wasn't a pump at the bottom of an oil well, but that's a good mental example. And he realized that the reason this thing was selling so poorly, even though it was better than anybody else's product, was because it was priced lower. It made people think it was a low quality gizmo. So he raised the price by 20% or so and the volume went way up.*

*...And nobody has yet come up with the main answer that I like. Suppose you raise that price, and use the extra money to bribe the other guy's purchasing agent? (Laughter). Is that going to work? And are there functional equivalents in economics - microeconomics - of raising the price and using the extra sales proceeds to drive sales higher? And of course there are zillion, once you've made that mental jump. It's so simple.*

*One of the most extreme examples is in the investment management field. Suppose you're the manager of a mutual fund, and you want to sell more. People commonly come to the following answer: You raise the commissions, which of course reduces the number of units of real investments delivered to the ultimate buyer, so you're increasing the price per unit of real investment that you're selling the ultimate customer. And you're using that extra commission to bribe the customer's purchasing agent. You're bribing the broker to betray his client and put the client's money into the high-commission product. This has worked to produce at least a trillion dollars of mutual fund sales.*

The investment management business still features this phenomenon in the extreme. Even though fees are in focus and under pressure, and even though passive index funds are taking share, there is a long way to go in that direction. In the meantime, investment managers that have already achieved scale and/or success - or at least the patina of success - can usually ride that wave years longer than we might otherwise think. And the most predictive indicator of investment fund-raising success remains, in my opinion, a spin-off from a name-brand firm. As a predictor of success the results might look different.

It's also worth thinking about how Investment environments are designed. Easy access to screens, ever-cheap commissions, beautiful data and blinking lights...they all have legitimate benefits, but they're also hugely encouraging to frequent trading. Every piece of trading software I've ever used literally rings a bell when a trade goes through. You can disable the sound, but you have to go to the trouble to do that. The broker isn't just trying to notify you of a completed trade, it's trying to encourage trading to generate more commissions.

In advertising, the world still works according to these principles, although there is some debate as to whether the world is changing in light of consumer preferences shifting away from brands toward generics. And the near-ubiquitous available of instantaneous price discovery enabled by mobile phones and Amazon must have some effect, however big, on diminishing the information inefficiencies and Pavlovian association so frequently exploited by brands. 25 years ago, it would have been hard to imagine Gillette being threatened by a start-up, or the rise of Kirkland (now with more revenue than Coca-Cola), or the slow fade of some CPG companies.

As an aside, a useful if unprovable counterfactual might be found in a hypothetical experiment: if all companies in an industry stopping advertising all together, would there be any net effect on sales? Even short of that, it follows that some or even most of the money spent on advertising is wasted. Just as I can't prove the idea about a world without advertising, most advertising executives can provide no definite proof of success or even a quantified return on investment.

Coca-Cola, as noted by Munger, used association and availability to enormous success in the 20th century. But with hundreds of millions or even billions spent on advertising every year, what progress is being made? In any case, the vivid examples of marketing success like Coke drive plenty of mindless imitation.

Going back to Munger's comments about accounting, Enron had a party - an actual party -

when it won approval for an accounting change that enabled mark-to-market (and really, mark-to-model) accounting. It was as if this episode were written by Munger in talking about how prior accounting scandals (speaking in 1995) “would never have been possible if the accounting system hadn’t been such [that] for the initial phase of every transaction it showed wonderful financial results.” That is precisely what happened at Enron when it booked long-term energy contracts or built physical assets and immediately recognized all gains and profits up front.<sup>[24]</sup>

My opinion, which is incomplete and open to criticism, is that no one at Enron – Lay, Skilling, Fastow or anyone else – woke up one morning and decided to cook up a massive fraud. As with many such cases, there was a slippery slope and little bad behaviors snowballed into enormous bad behaviors. At Enron I think there were incentive-caused problems and cultural issues that morphed into a monster. Just as some notable people have overdosed on Ayn Rand, Jeff Skilling talked about Richard Dawkins’ book *The Selfish Gene* as his favorite and the foundation of his managerial philosophy. He had an extreme view of the world in which money and fear were the only possible motivators of people. He insisted on a numerical grade for all Enron employees, and it required that 15% of all people had to be given the lowest score *regardless of absolute* performance and forced to find another job inside or outside of Enron within two weeks (a practice known as “rank and yank”).

That is an interesting vignette about the culture, but it can’t tell the whole story. In a pattern that hopefully sounds familiar, it was a confluence of events that made the Enron situation possible. There was a load of incentive-caused bias – the entire company and culture was created as if to maximize the potential problems in that regard. There was social proof – the company was a successful, edgy, high-flying, politically connected wonderchild that was adored by the press and by Wall Street. (It was a pipeline company that quickly transformed itself and was named by Fortune as “America’s Most Innovative Company” for six consecutive years.) There was over-influence by authority as higher-ups encouraged others in the organization to engage in misconduct. There were contrast effects as the transgressions and crimes started small but grew over time, aided by commitment and consistency. The auditor was central to the villainy here too, and in this case it caused an entire firm – one of the giants of American business – to be criminally indicted and implode.

Likewise, the rise of Las Vegas is often attributed to the removal of the mafia, but the development of Las Vegas wouldn’t have been possible without some deep sources of capital to replace the mob. And the development was driven by a regulatory and accounting change. In 1969 the Nevada state legislature passed the Corporate Gaming Act, allowing corporate entities to purchase and build casinos without subjecting every shareholder to be thoroughly vetted by background checks as previously required. Expansion predictably exploded, and now you can play anywhere in Las Vegas: Strip casinos, local casinos, drug stores, car washes, supermarkets. Many of these places have not just the usual “reward” programs and perks, but they also offer childcare to enable more gambling. Likewise, legal and regulatory fights over sovereignty on Native American reservations was the driving force in spreading casino gambling to all corners of America. It didn’t take long for the politicians to sink their teeth into the juicy tax revenues casinos could offer by rewriting the laws to justify them in otherwise asinine locations. Gambling was legal on cruise boats, so all forms of water should be a safe harbor for casinos.? I’m an illegal gambler on land but as soon as I walk across some little bridge in Gary, Indiana or Joliet, Illinois onto a makeshift riverboat and suddenly I’m legitimate? It’s a Mad Hatter’s Tea Party, as Munger would say.

<sup>[18]</sup> <http://www.vanityfair.com/news/2017/05/wells-fargo-corporate-culture-fraud>

<sup>[19]</sup> *The Undoing Project* by Michael Lewis

<sup>[20]</sup> <http://datacolada.org/wp-content/uploads/2014/08/Kahneman-Tversky-1972.pdf>

<sup>[21]</sup> I fudged some of the figures and details to make it less obvious, but the point hopefully stands.

<sup>[22]</sup> *How We Know What Isn't So* by Thomas Gilovich

<sup>[23]</sup> As reprinted in *Poor Charlie's Almanack*

<sup>[24]</sup> Bethany McLean and Peter Elkind , *Smartest Guys in the Room: The Amazing Rise and Scandalous Fall of Enron*, 2003, ISBN 1-59184-008-2.