

The Risks In Assessing Risk

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It's All About Risk

- Risk Assessment
- Risk Management
- Enterprise Risk Management
- Governance Risk and Compliance (GRC)



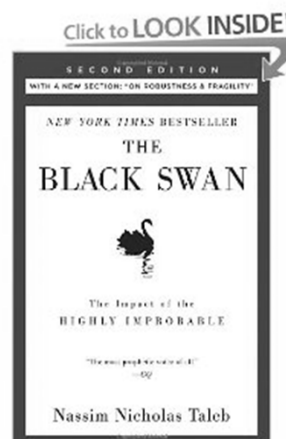
But Here's the Risk

- Do we really understand the risk, whether for data or other compliance challenges?
- How good are we at evaluating risk?



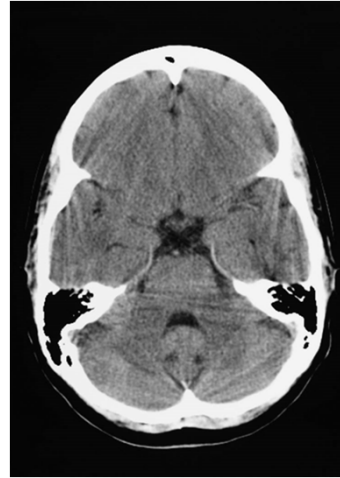
Who Saw?

- Rise of the Internet?
- The dot bombs
- The housing market collapse
- Fall of the Berlin Wall
- 9/11



Our Goals: To Understand...

- How the brain works (and doesn't) when it comes to risk
- What rats have figured out and people haven't
- What entrepreneurs are afraid of
- And why some of you likely will think this is a complete and total waste of time



And One More Thing

- We're going to figure out the next number in this series:

8

3

8



Who Is The Bigger Daredevil?



Flying vs. Driving

- A typical US domestic flight (about 1200 kilometers) is as dangerous as driving how many kilometers in a car on rural interstate highway?
 - That's the safest road to drive



Fly or Drive

Average US domestic flight risk = Driving less than 20 kilometers on rural interstate highway



Source: www.fearofflying.com/about/research.shtml

How Could We Be So Wrong?

- Fear of heights and claustrophobia
- Crashes are easier to remember than safe landings
 - No newscaster announces how many planes landed safely that day
- When you drive you are a driver and when you fly you are a passenger with no control



How Important Is the Need for Control?

- Two groups of nursing home patients: one could decide how rooms could be arranged and choose a plant to care for. The other group had their rooms set up, plants assigned and tended for them.



What Happened?

18 months later:

- Death rates with control: 15%
- Death rates without control: 30%



Risks Are Not Just About the Numbers

$$5+2 \neq 7$$



Sandman's Equation

**Risk =
Hazard
+ Outrage**



Sandman's Equation

- Risk A: tragedy
- Death B: outrage



Social Media Factor

$\text{Risk} = (\text{Hazard} + \text{Outrage}) \times \text{Social Media}$



What's Next?

- What's the next number in this series?

8

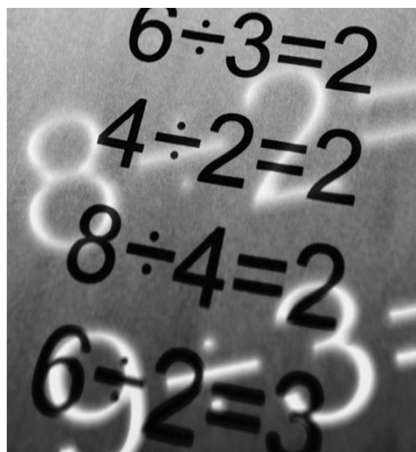
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The Problems With Patterns

- Patternicity: “the tendency to find meaningful patterns in meaningless noise”
 - Michael Shermer, Scientific American



Our Gene Patterns

- Humans are wired to look for patterns and to act upon them
 - Why? Because it keeps us alive.
 - Why do we make mistakes? Because it is, from an evolutionary perspective, better to see a false pattern than miss a real one
 - “The problem is that we are very poor at estimating such probabilities, so the cost of believing that the rustle in the grass is a dangerous predator when it is just the wind is relatively low compared with the opposite.”



Casino Wisdom

Can you spot the gambler's aid that hurts the gambler?



Casino Wisdom

- Casinos know you look for patterns.
- They also know it matters to you but not to the ball
 - The Gambler's Fallacy

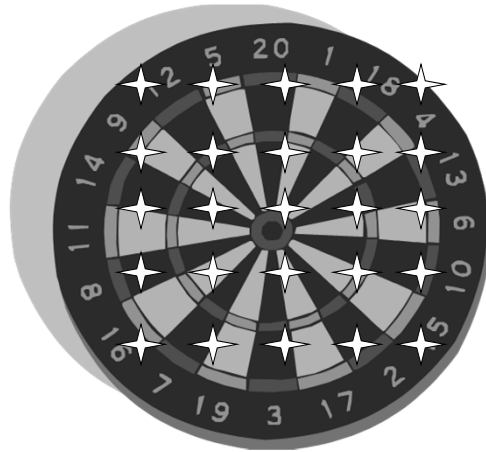


And It's Hard to Know What's Random

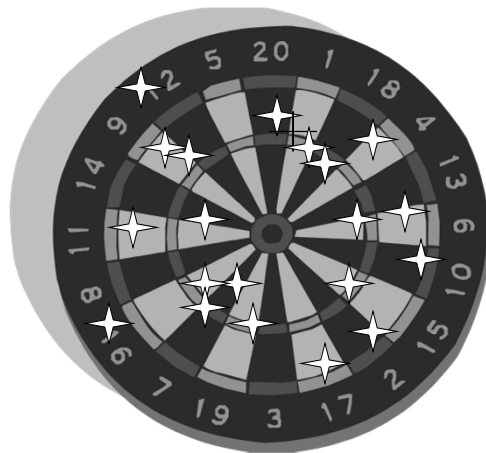
- Apple made its random less random so people would believe it is random



Blindfolded Man & A Dartboard



Blindfolded Man & A Dartboard



What Is Random?



Cancer Clusters

- Is the cancer concentrated in a given area because:
 - More people there
 - Something environmental
 - Randomness
- We want to find the pattern



The Probability Problem



Humans Vs. Rats

The Situation:

Two lights. One red, one green, blinking randomly BUT red appears 75% of the time.

The Challenge:

You have to predict whether the next light will be red or green. What do you do?



Humans vs. Rats

- Two basic strategies:
 - Always pick red
 - Guess proportionally



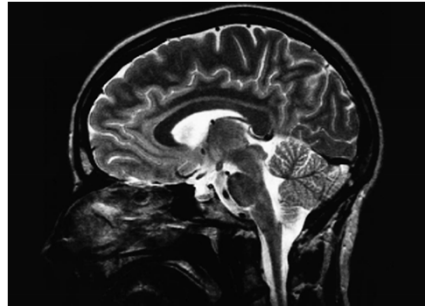
Rats Win!

- Rats tend to guess red each time.
 - Success rate: 75%
- Humans try to guess
 - Success rate: around 60%



And Here's Where it Gets Weird

- What about people with brains split in half?
- Right eye and right hand: Guess the pattern
- Left eye and left hand: Always guess the more frequent color



The Landslide

Which is more likely?

- A deadly landslide causing a hundred deaths somewhere in North America
- A deadly landslide, caused by a California earthquake, causing a hundred deaths



Which Is More Likely

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 antinuclear demonstrations.

What is more likely?

- A. Linda is a bank teller
- B. Linda is a bank teller and is active in the feminist movement?



The Story Problem

- We look for causes to explain things
- It is easier to remember a story than a bunch of random facts



Hindsight Bias

- All the missed cues leading to 9/11, Pearl Harbor and everything else.
- “Past events will always look less random than they were.”
 - Nassim Taleb



What Are There More Of?

- Six-letter words with “n” as the fifth letter
- Six letter words ending with “ing”



Availability Bias

- We focus on memories that are most vivid and easier to recall
- Why you:
 - Always get stuck on planes next to obnoxious people
 - Never make the traffic light at the corner of....



Africa and the UN

- Percentage of African nations that are members of the UN
 - Do you think it is more or less than 45%? Please give the exact percentage.
 - Do you think it is more or less than 65%? Please give the exact percentage.



Anchoring Fallacy

- Lacking some objective standard, we look for any standard available.
 - Write down the last four digits of your Social Security number on a piece of paper. Then estimate the number of restaurants in Manhattan. On average, the higher the Social Security number, the higher the estimate.



Say That Again?

Scenario: A disease outbreak is expected to kill 600 people. You can choose between two treatments:

Program A: 200 people will be saved

Program B: 1/3 probability that 600 people will be saved, and a 2/3 probability that no one will be saved.

What do you pick?



Say That Again?

Scenario: A disease outbreak is expected to kill 600 people. You can choose between two treatments:

Program C: 400 people will Die

Program D: 1/3 probability that no one will die, and a 2/3 probability that 600 people will die.

What do you pick?



What Happened?

- The math is the same: $A=C$ and $B=D$
- Out of 600 people:
 - 200 will be saved vs. 400 will die
 - 1/3 probably that 600 will be saved vs. 1/3 possibility that no one will die
 - 2/3 probably that no people will be saved vs. 2/3 probably that 600 people will die
- But the description changed and with it the appetite for risk



The Cinema Queue

- You go to your local cinema. Who would you rather be?
 - A: The 100,000th customer who has just won KM100
 - B: Standing behind the person who won KM1000 for being the 1,000,000th customer, but you get KM150 for being 1,000,001



The Movie Line

- Most people would rather get KM100 instead of KM150
- Welcome to regret aversion



Voice Bias

- Who's doing the talking affects what we're willing to listen to and will support
 - Democrats support restrictive welfare programs if they think a Democrat proposed it
 - Republicans support generous programs if they think a Republican proposed it



What Do Your Spouse's Driving,
the Death Penalty and Your
Opinion of This Presentation
Have in Common?

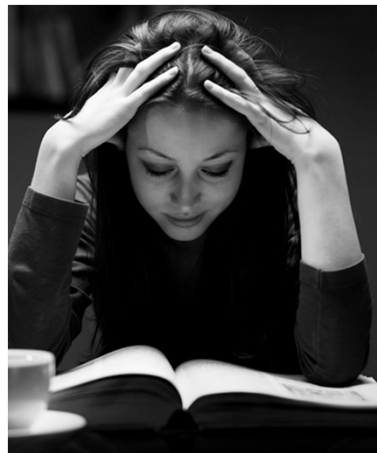
Who's the Better Driver?

- Are you in a long term relationship?
- Are you the better driver?



The Death Penalty

- Two groups: pro and con
- Two sets of studies: pro and con
- In the end: each group left more convinced in their views.
- Separate research showed people don't remember data that refutes their beliefs



Confirmation Bias

- The tendency to believe you're right, no matter what the evidence says
- Also known as: here are the conclusions from which I draw my facts
- Ties into our hatred of being wrong
- And why this presentation will be about as good or bad as you thought it would be when you first walked in the door



What's the Cause of Confirmation Bias?

- We're not using the thinking part of the brain: the dorsolateral prefrontal cortex.
- We use the:
 - Orbital frontal cortex: processes emotion
 - Anterior cingulate: conflict resolution
 - Posterior cingulate: judgments about moral accountability
 - Ventral striatum: reward



Who's More Ethical?

- Scenario put to Harvard Business Review Readers: An executive earning \$30,000 a year has been padding his expense account by \$1,500 a year.



I'm More Ethical Than My Colleagues!

	What I Think	What My Colleagues Think
Acceptable if other executives in the company are doing the same thing	4%	28%
Acceptable if the executive's superior knows about it and does nothing	9%	33%
Unacceptable regardless of the circumstances	89%	53%



The Paradox of Power

- “The very traits that helped leaders accumulate control in the first place all but disappear once they rise to power. Instead of being polite, honest and outgoing, they become impulsive, reckless and rude.”



On The Way Up

- Research among university students shows:
 - Those who were the most powerful and respected were also the most considerate and outgoing
 - Among sorority girls, the Machiavellian ones were isolated



But When People Reach the Top?

- More likely to:
 - Rely on stereotypes and generalizations when judging other people
 - Spend less time making eye contact when talking with people with less power
 - Cheat
 - Rationalize their behavior



D4DR: The Risk Gene

- Most humans have 4-7 copies of the gene on chromosome 11
- Others have 2-3 long copies or 8-11 short copies
- Longer and fewer copies means lower sensitivity to dopamine and a tendency (but not a mandate) to seek greater risks



The Brain on Risk

- MRIs show risk and reward are assessed by:
 - The dopaminergic system: important for motivational and emotional process
 - Amygdala: fear



But What About Entrepreneurs?

The LOVE Risk and Keep the Economy Humming

Are You An Entrepreneur?

- Which business would you prefer?
 - A potential profit of KM5 million with a 25% chance of success
 - A profit of KM2 million with a 50% chance of success
 - A profit of KM1.25 million with an 80% chance of success

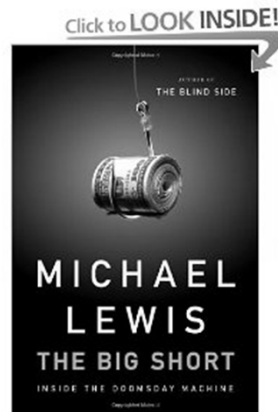


The Real Entrepreneur



The Big Short

- The subprime winners weren't the risk takers at the banks but the quants who crunched the numbers
 - 5% decline in housing prices crashed the market



So Now What?

Takeaways

- Make sure you really understand what the likelihood of a risk is:
 - Are you on a plane or in a car?
- Recognize that even when we know the risk, it doesn't mean we act based on what we know
 - Emotions are important, especially if you're in the batter's box
- The actual risk is amplified by the outrage associated with it
- It's also affected by how dramatic it is and easy to recall



Takeaways

- Don't be fooled by patternicity
- And remember that random may not look random
- Watch out for availability bias
 - Just because it's easiest to remember doesn't mean it's the likeliest thing to occur
- Our perception of the risk is affected by who is making the assessment of it.
- Don't trip over anchors
- Be careful what language you use
 - 200 living vs. 400 dying



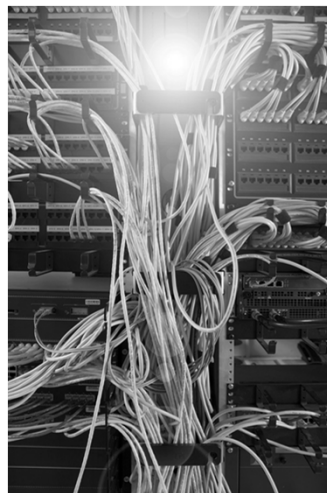
Takeaways

- Don't regret falling into regret bias
- Watch for confirmation bias
- Think like an entrepreneur
 - A real one



Think About Any Risk Not Just Specific Risks

- Search for the commonalities in solutions for potential risks
- Develop flexible resources for responding: Even if you can't control the risk you can control the response



SCCE Research

- Commonalities of response:
 - Focus on communications opportunities
 - Understand and maximize your IT resources
 - Re-examine incentives structure
 - Assess what is sourced internally and externally
 - Plan on working with others: HR, legal, audit, corporate communications, others



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