



Outrage Machine

**How Tech Amplifies Discontent,
Disrupts Democracy—And
What We Can Do About It**

Tobias Rose-Stockwell

Introduction by JONATHAN HAIDT,
New York Times bestselling author of *The Righteous Mind*

OUTRAGE MACHINE

*How Tech Amplifies Discontent,
Disrupts Democracy—And What We Can Do
About It*

TOBIAS ROSE-STOCKWELL



LEGACY
LIT

New York Boston

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Chapter 3

The Overwhelming Present

Fast vs. Slow Thinking

SYSTEM 1

"Fast" Thinking

Reactive
Unconscious
Emotional
Automatic



SYSTEM 2

"Slow" Thinking

Reflective
Reliable
Effortful
Deliberative

Faster vs. Slower Information



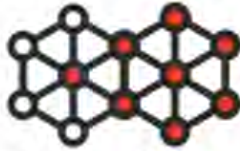
Faster

Unverifiable
Urgent
Lacking Context
Emotional



Slower

Sourced
Accurate
In-Context
Reliable



Virality

is the phenomenon of content spreading through peer-to-peer sharing.



Velocity

is the *rate* at which that content spreads.

Chapter 5

Pushing the Trigger



Adapted from *Upworthy*'s slide excerpt titled "Why the Hell Do People Share?" Source: *Upworthy*

**A/B
TESTING
IN SUMMARY**



THIS IS BOB

NEWS ITEM!

BOB DID A THING.

This news story will be changed to receive more clicks by tweaking the title, subtitle, and photo to test the reactions of the audience.

VERSION A



VERSION B



VARIABLES
TO TEST:

HEADLINE

SUBTITLE

PHOTO

2.1% Click Through Rate
Projected Ad Value: \$1320

3.4% Click Through Rate
Projected Ad Value: \$2170

★ WINNER ★

© FORBES.COM

**WATCH BOB
CRUSH OPPOSITION
WHILE DOING THING**

Gives you goosebumps

PRO-BOB

**AFFECTIVE
CUES**

**BOB SENDS
STRONG MESSAGE
BY DOING THING**

Thank you, Bob!

**CAN YOU BELIEVE
WHAT BOB DID?**

This changes everything.

**WHY DIDN'T
BOB DO THESE OTHER
IMPORTANT THINGS?**

You'll be shocked to see why!

**PEOPLE SUFFER
WHILE BOB DOES THING**

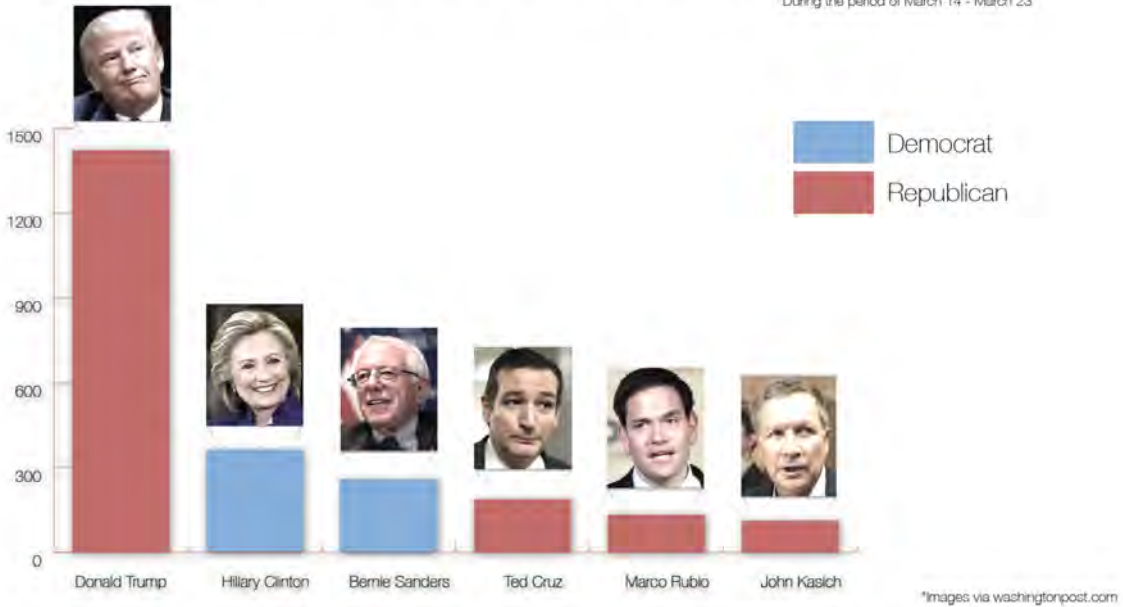
Appalling.

ANTI-BOB

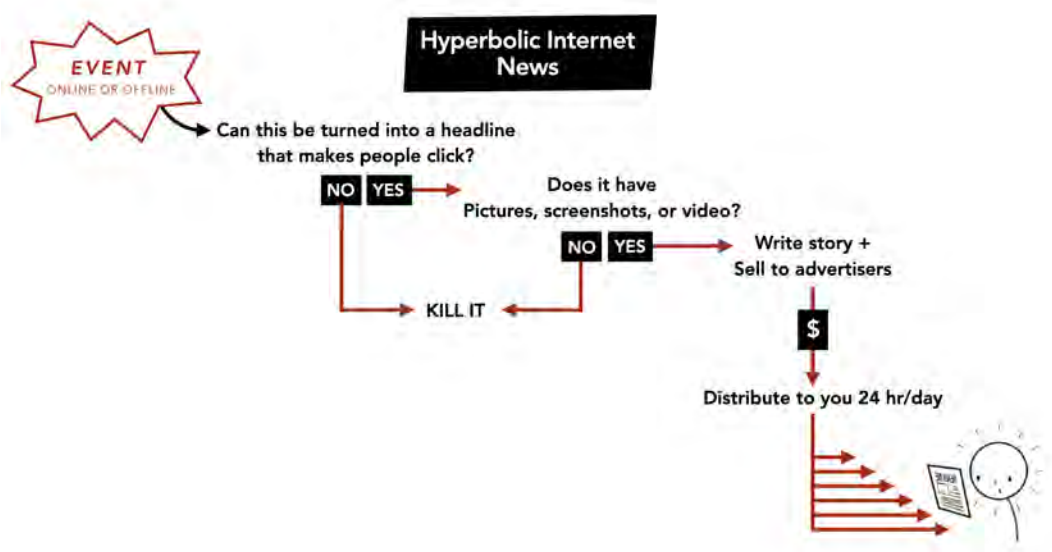
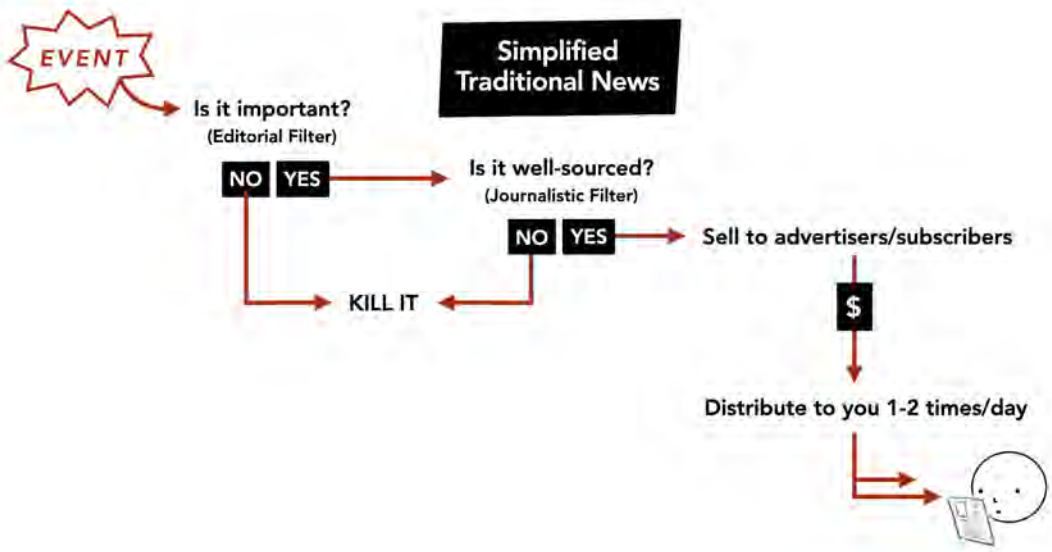
Media Coverage of Top Presidential Candidates

Number of homepage mentions across 14 top online news sources over a 7-day period*

*During the period of March 14 - March 23



Snapshot of primary season media coverage, March 14–23, 2016, Source: Ev Boyle/USC Annenberg





USA TODAY

THE NATION'S NEWS | \$2 | WEEKEND | JUNE 4-6, 2021

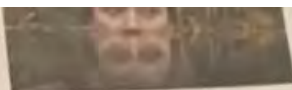


PHOTO BY AP/WIDE WORLD

ADVERTISEMENT

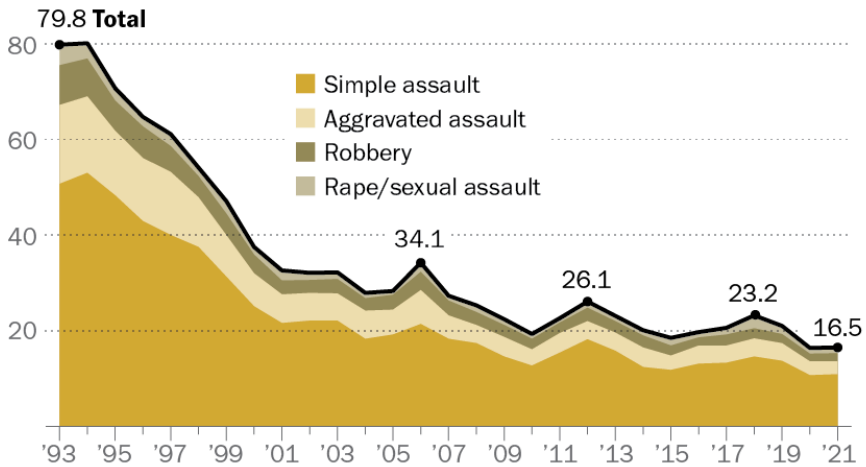
Hybrid babies born across the US

World reacts to new generation of half-human,
half-animal children with both awe and concern



Federal surveys show no increase in U.S. violent crime rate since start of the pandemic

Violent victimizations per 1,000 Americans ages 12 and older



Note: Data for 2006 is not comparable to other years.

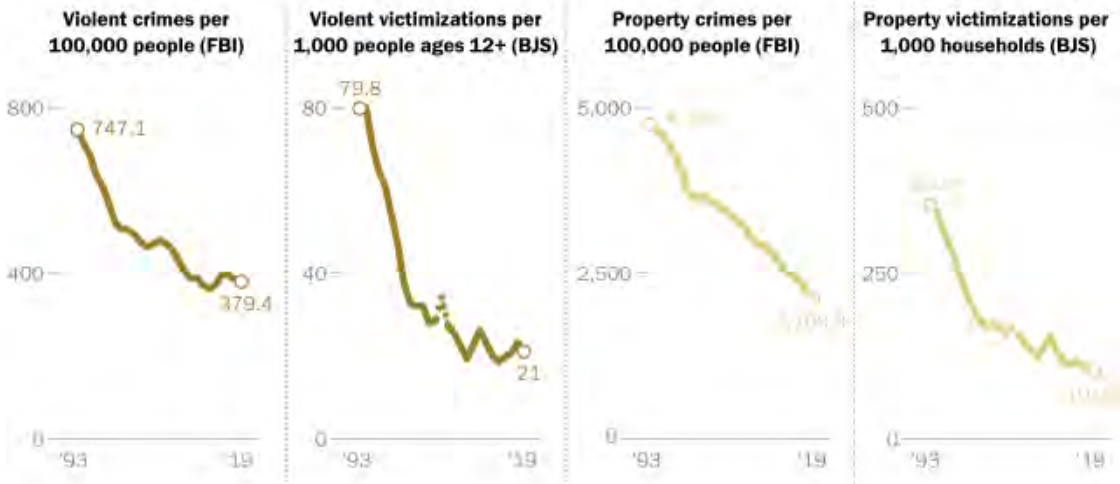
Source: U.S. Bureau of Justice Statistics.

PEW RESEARCH CENTER

Source: Pew/Gallup

U.S. violent and property crime rates have plunged since 1990s, regardless of data source

Trends in U.S. violent and property crime, 1993-2019



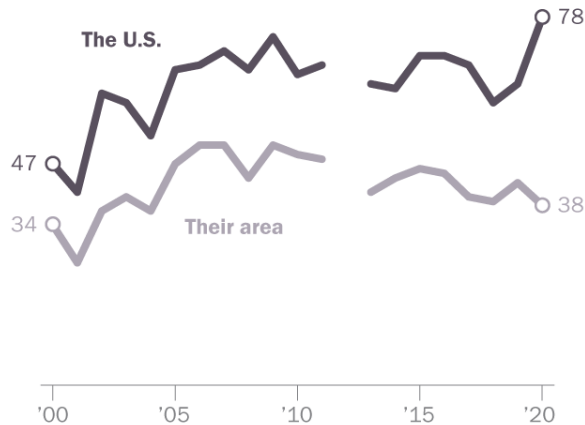
Note: FBI figures include reported crimes only. Bureau of Justice Statistics (BJS) figures include unreported and reported crimes. 2006 BJS estimates are not comparable to those in other years due to methodological changes.

Source: U.S. Bureau of Justice Statistics (BJS), Federal Bureau of Investigation (FBI).

PEW RESEARCH CENTER

Americans tend to believe crime is up nationally, less so locally

% of U.S. adults who say there is more crime in ___ than there was a year ago

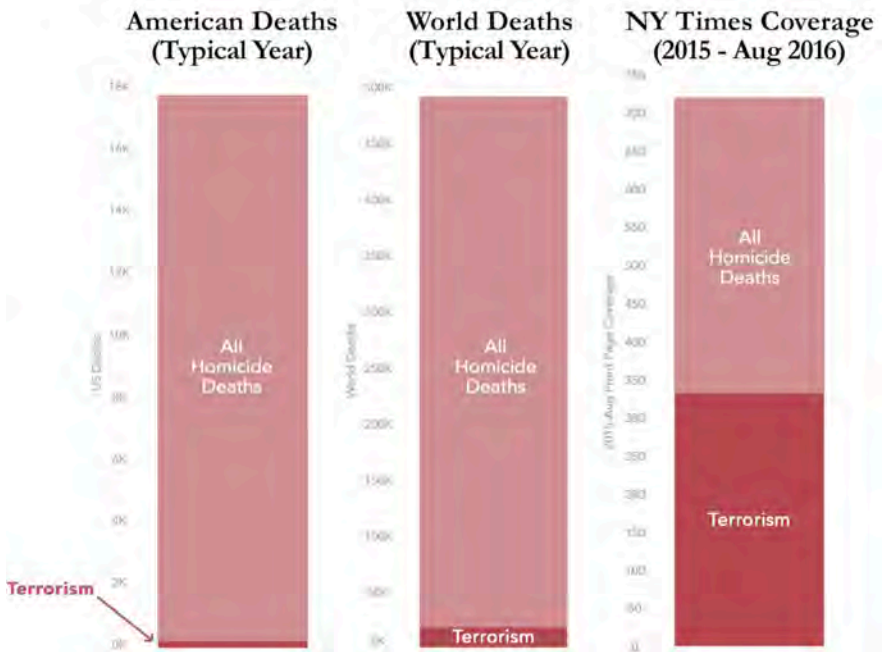


Note: Data not available for 2012.

Source: Gallup.

PEW RESEARCH CENTER

TERROR + HOMICIDE RATES



Source: Nemil Dalal, 2017, Pricenomics. Chart shows sampling of data and stories defined as “Islamic terror” compared to overall homicide deaths. Note that terrorist attacks by non-Muslims are regularly not referenced as terrorism by news outlets in initial reporting, though this is steadily changing.

MEDIA SPOTLIGHT

TERRORISM

TERRORISM

@TOBIASROSE

Chapter 6

Black and Blue, White and Gold



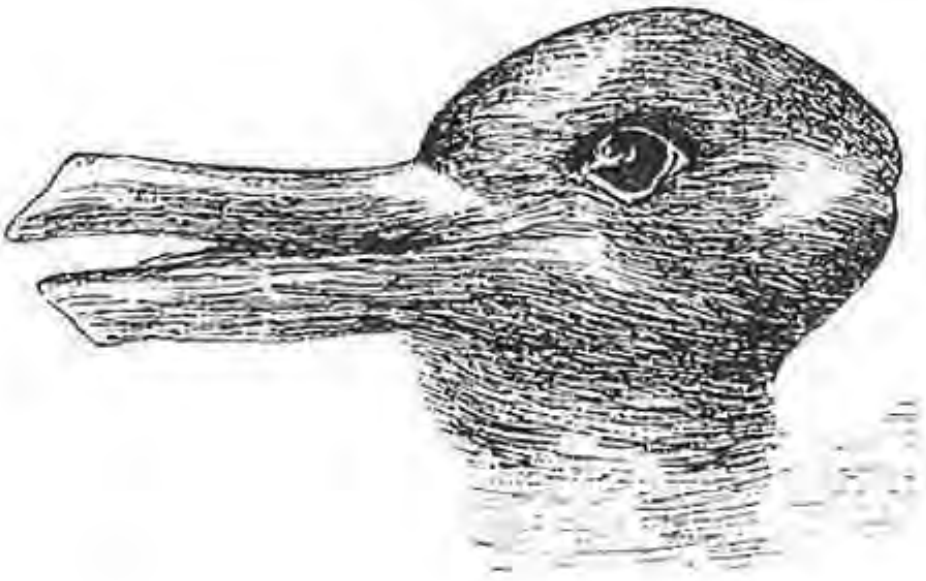
+40% BRIGHTNESS
+40% CONTRAST

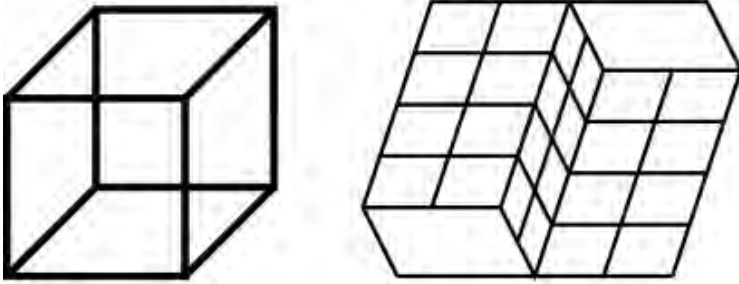


ORIGINAL

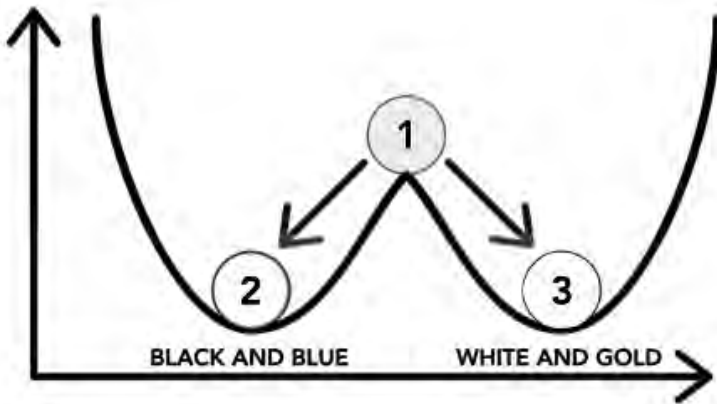


-30% BRIGHTNESS
+40% CONTRAST





Rabbit/duck and geometric optical illusions. These are two examples of ambiguous images where viewers generally find it easy to switch between perspectives.

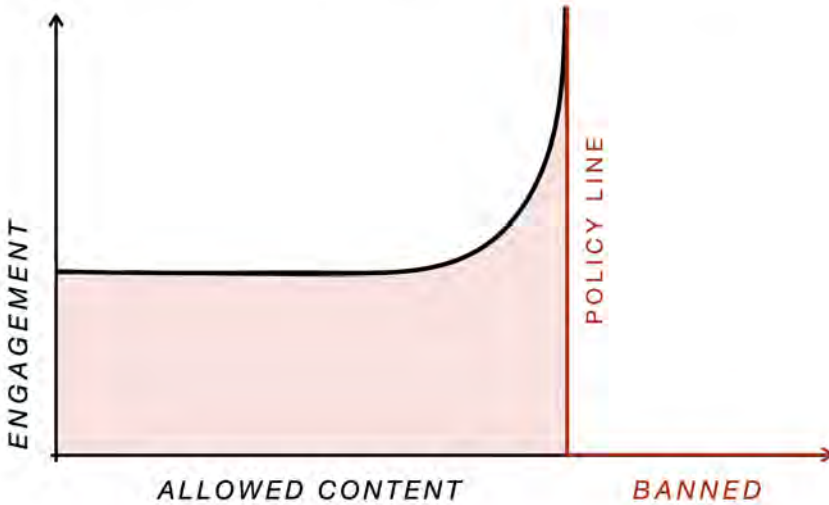


Bistable mechanism: Diagram showing stable and unstable states of perception, operating like a valley with a small hill. Ball #1 is unstable; it will roll down to either side of the perception, requiring significant force to get to the other side. Bistable images have two stable states, requiring substantial effort from viewers to move between them. Source: Georg Wiora, Schematic representation of bistability, 2006.

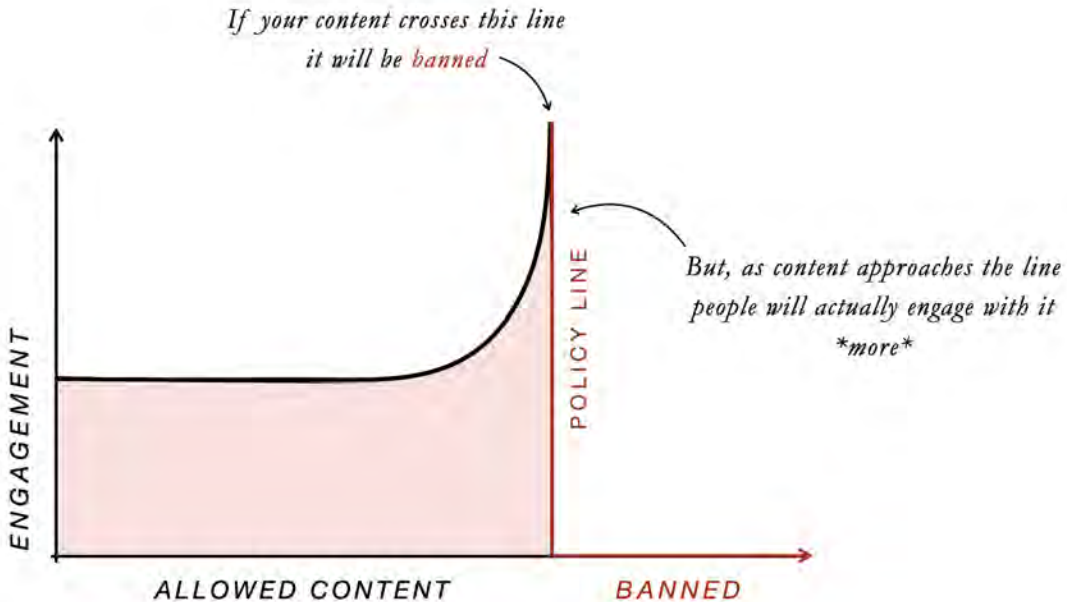
Chapter 7

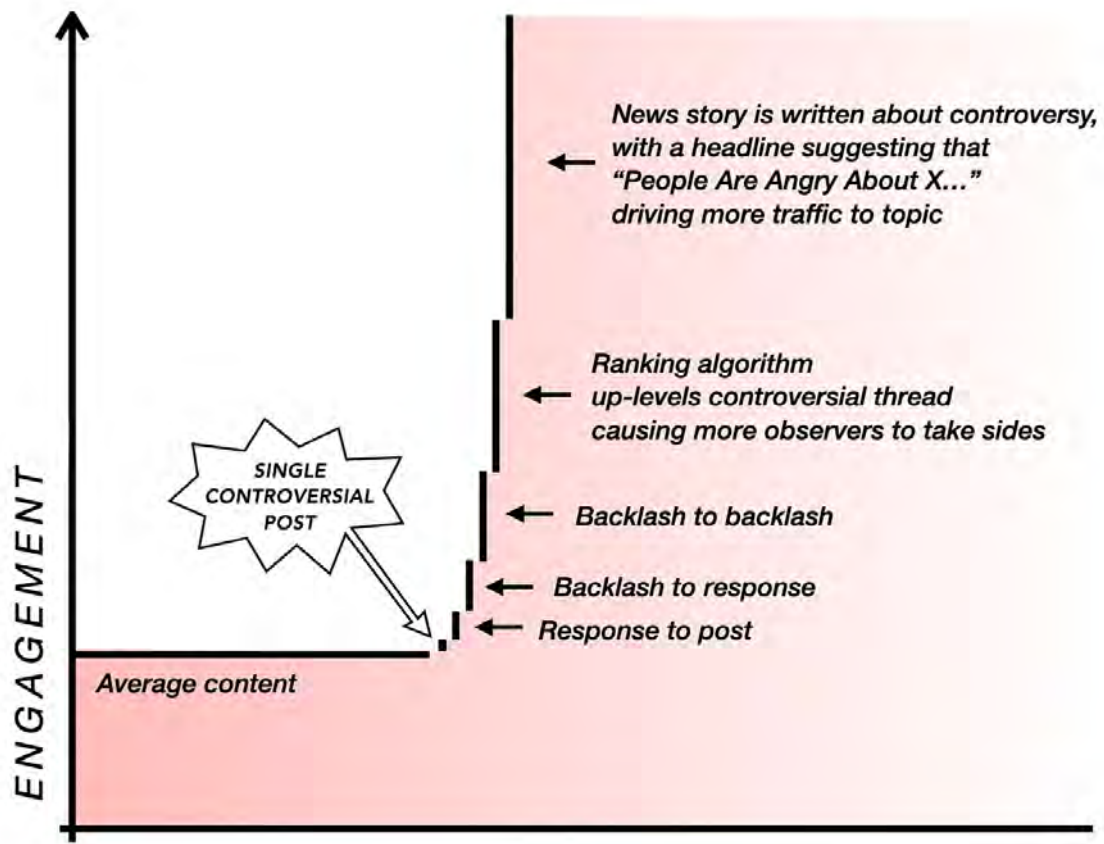
The Engagement Escalator

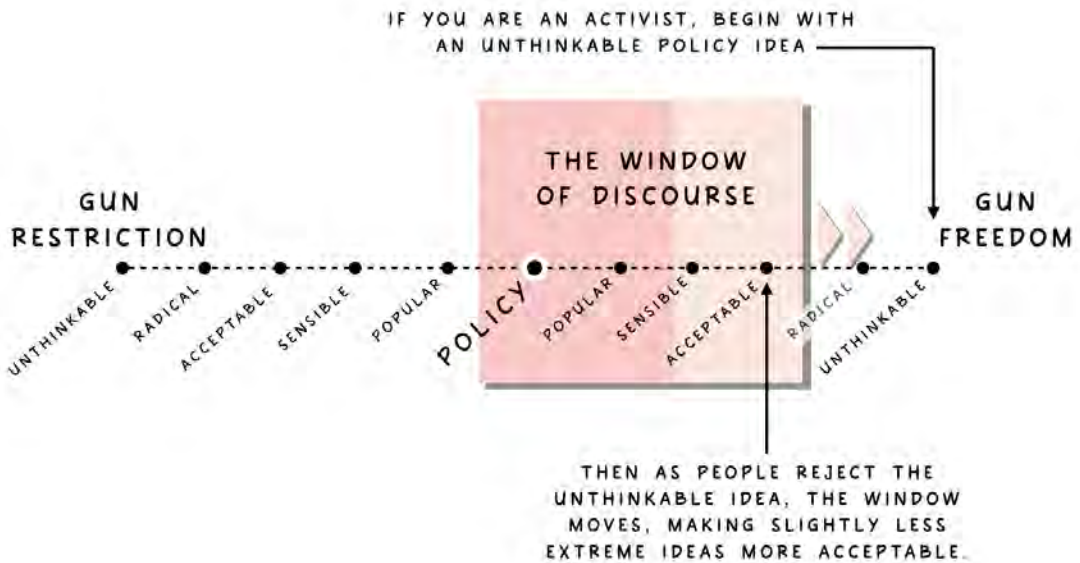
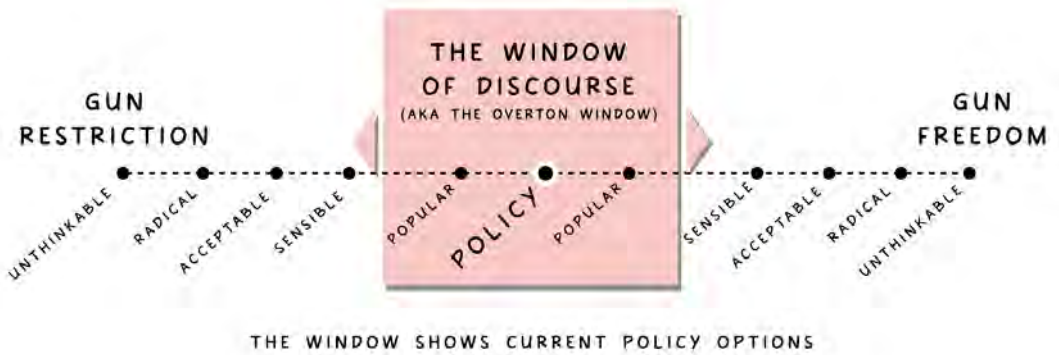
NORMAL ENGAGEMENT PATTERN ON SOCIAL MEDIA

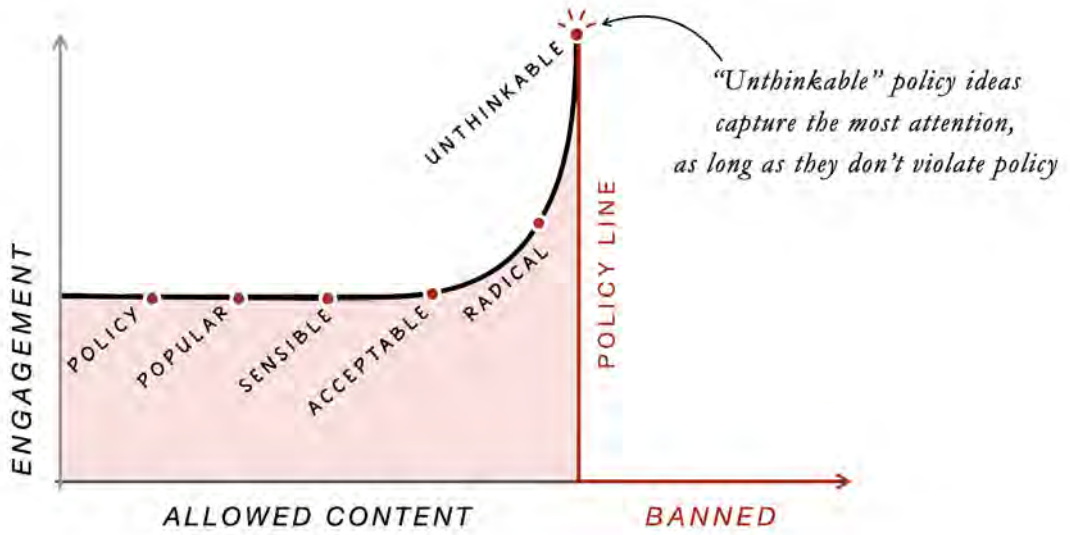


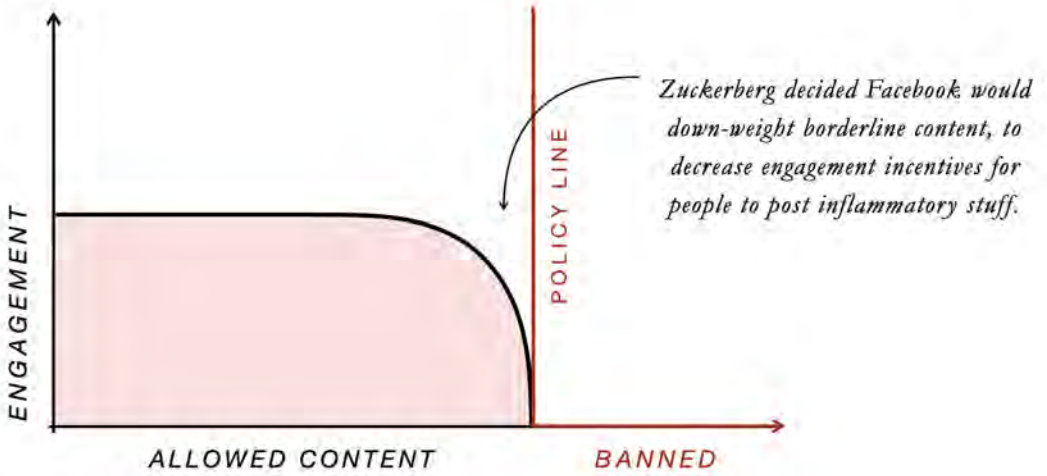
Source: Mark Zuckerberg, A Blueprint for Content Governance and Enforcement: Natural Engagement Pattern, 2018.









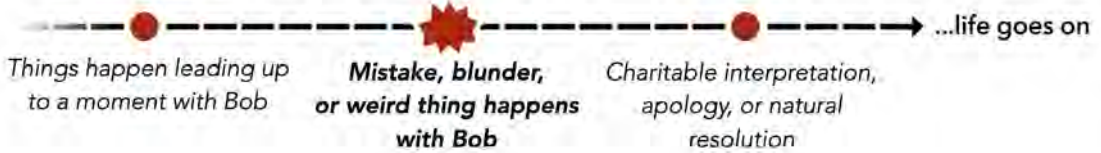


Source: Mark Zuckerberg, A Blueprint for Content Governance and Enforcement: Adjusted to Discourage Borderline Content, 2018.

Chapter 8

The Apple of Discord

TIMELINE OF EVENTS



STEP 1: CONTEXT COLLAPSE

Event posted to social media lacking context

HIDDEN CONTEXT



HIDDEN CONTEXT



Social Media Anger

**STEP 2:
CONTEXT
CREEP**



Social Media Outrage

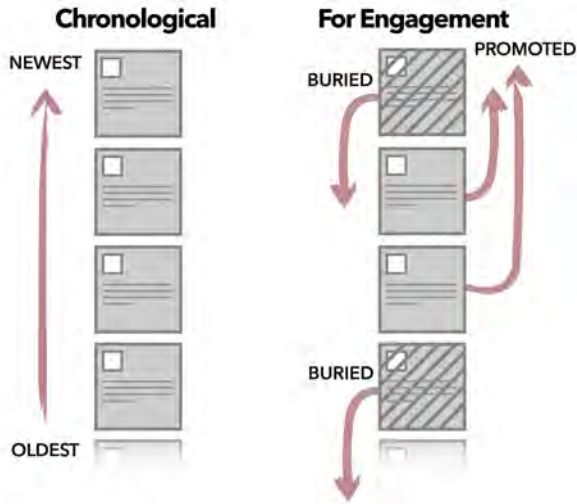
Chapter 9

Trigger-Chain



Feed Sorting

The way content is prioritized in our feeds by an algorithm

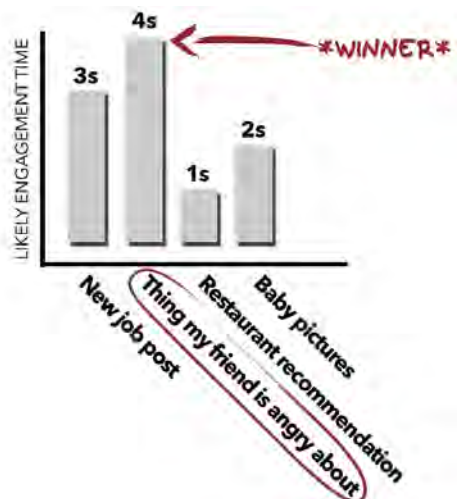


Instagram, Facebook, Twitter, YouTube, TikTok, and others long ago moved away from reverse-chronological sorting to help users process more content, and to keep them on-site longer.

Basic Sorting Algorithm

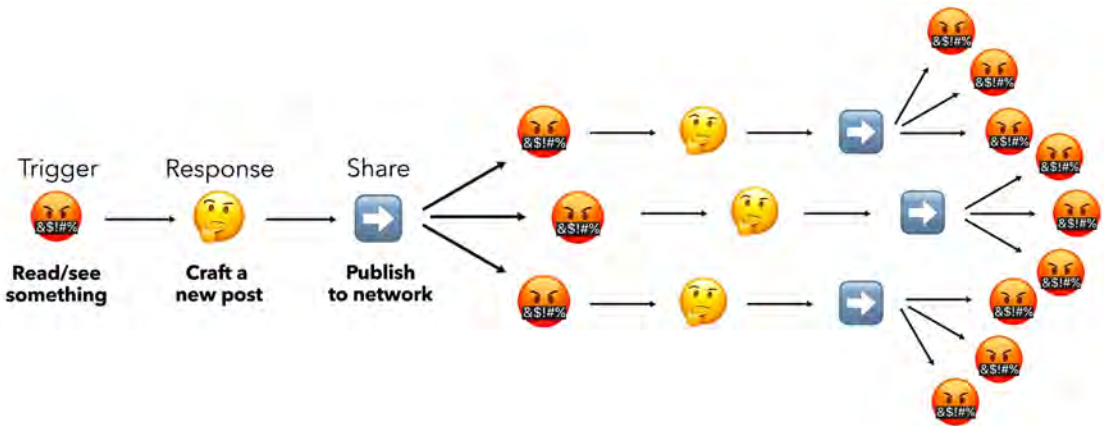
Which content should be shown first to keep people on-site longer?

1. Sort content in order of likely engagement time
2. Serve content in order of likely engagement time





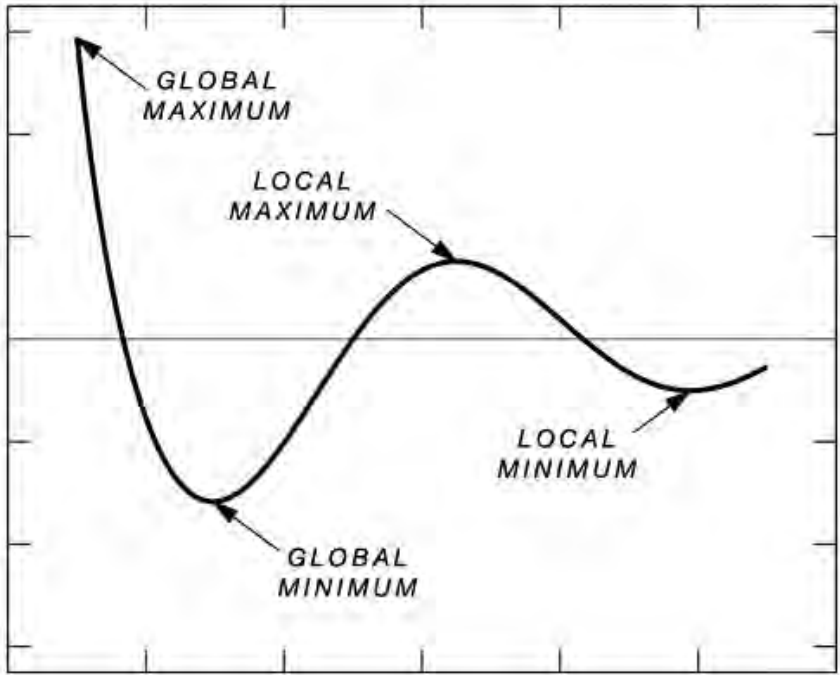
A simplified model of how we share on social media.
Middle step is skipped when users simply retweet or share content.



Our reasons for outrage are often shared, triggering others and creating outrage cascades.

Chapter 10

Algorithms



Source: KSmrq, Extrema example original, 2007.

Meaningful Social Interactions

You will see a post on Facebook if:

P

+

C

+

T

+

R

POST

CREATOR

TYPE

RECENCY

The post is
engaging to other
users like you

The creator has
a history
of engaging posts

It is the type of post
you usually click on
(photo, video, etc.)

It was
posted
recently*

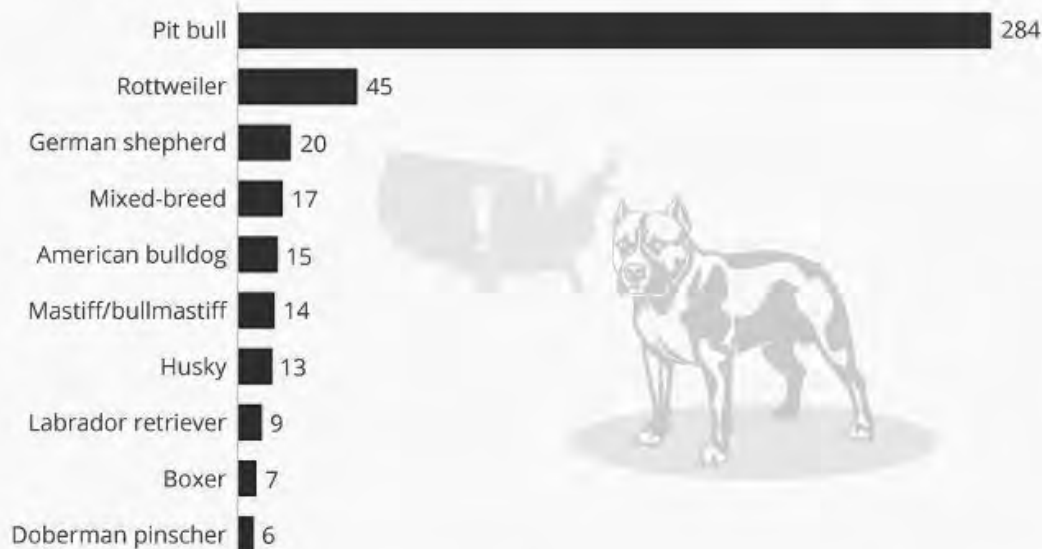
**plus many other variables*

Chapter 11

Intuitions and the Internet

America's Most Dangerous Dog Breeds

Breeds/types of dog involved in fatal attacks on humans in the U.S. from 2005 to 2017*



* Not including unknown/unreleased breeds
Source: DogsBite.org

CC BY ND
@StatistaCharts

statista

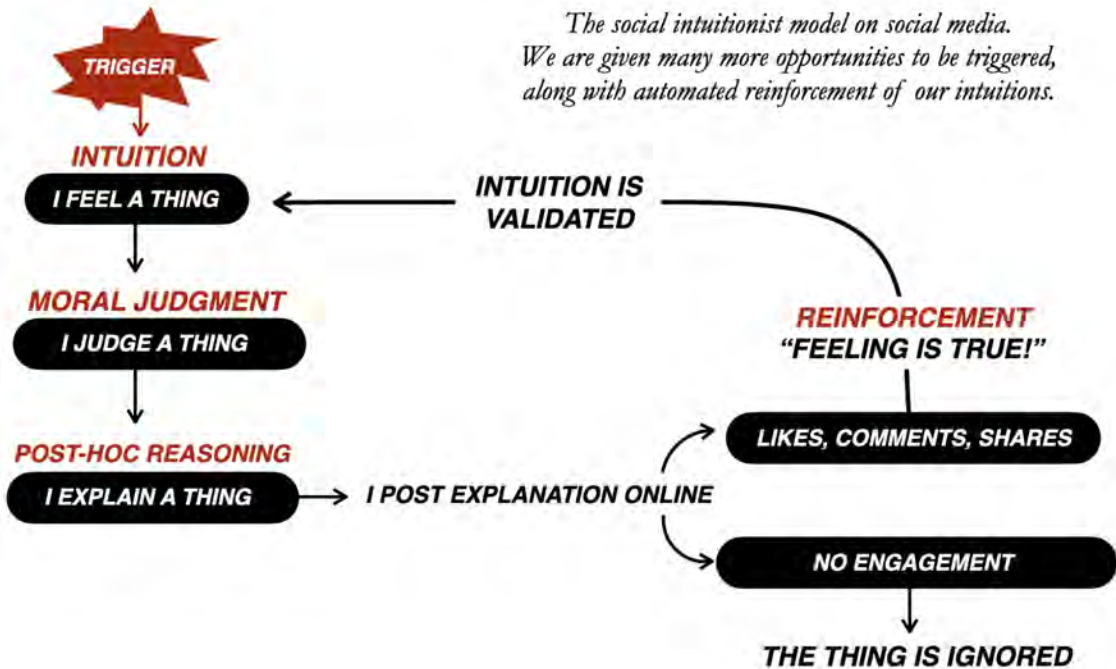


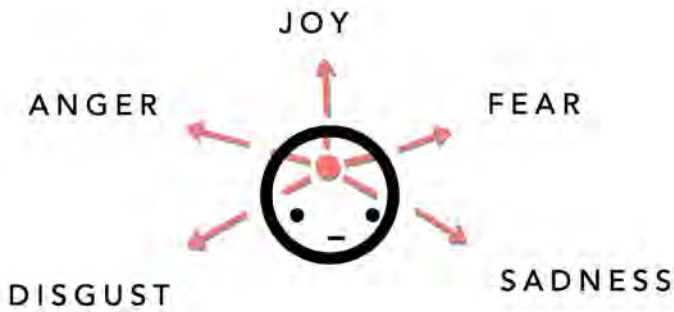
The intuitionist model, showing how we first feel intuitions, then judge them, then explain the justification to ourselves and others.



The social intuitionist model. Intuitions come first and reason is usually produced after a judgment is made. But with a discussion, reasons offered by others allow for us to change and update our intuitions.

*The social intuitionist model on social media.
We are given many more opportunities to be triggered,
along with automated reinforcement of our intuitions.*





Emotions

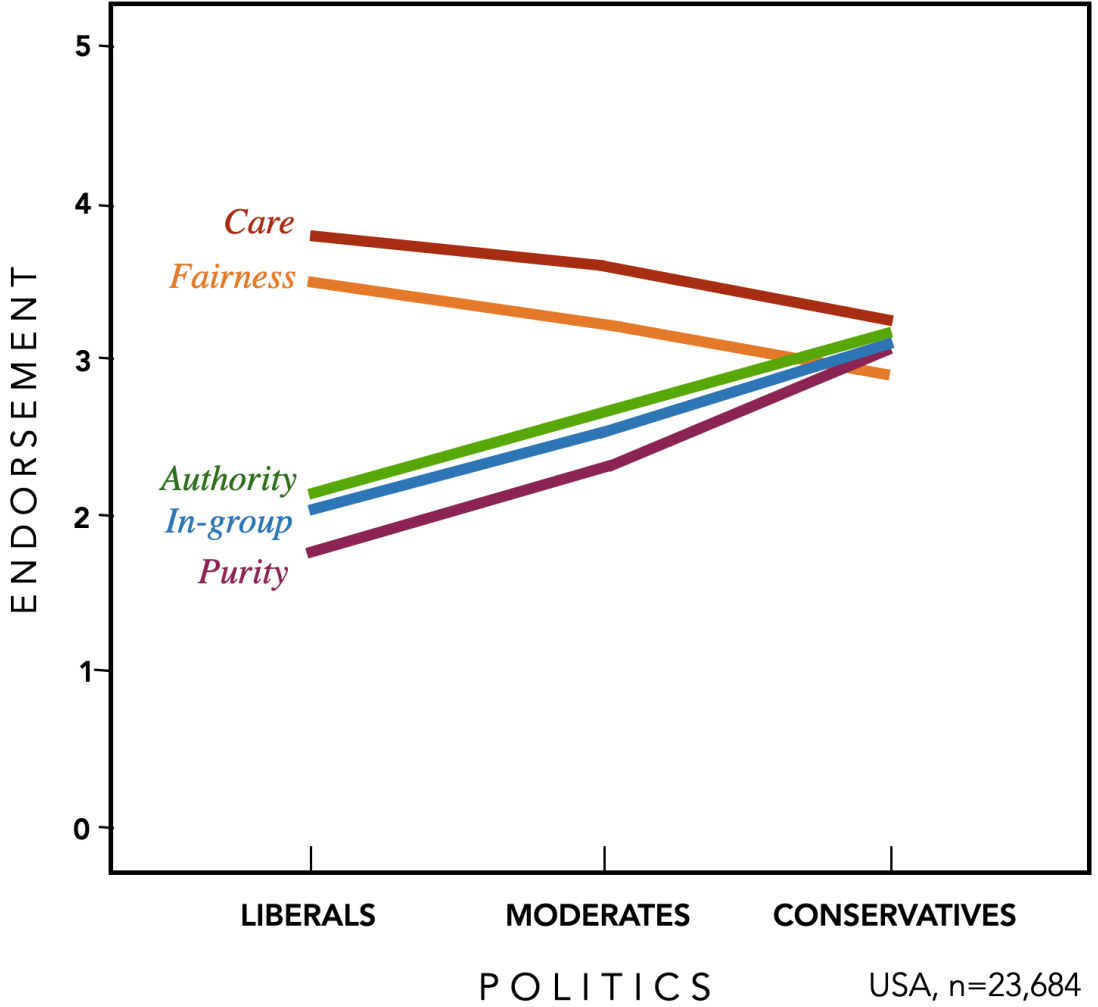
Internal guides which evolved to help me survive



Moral Emotions

Internal guides which evolved to help my group survive

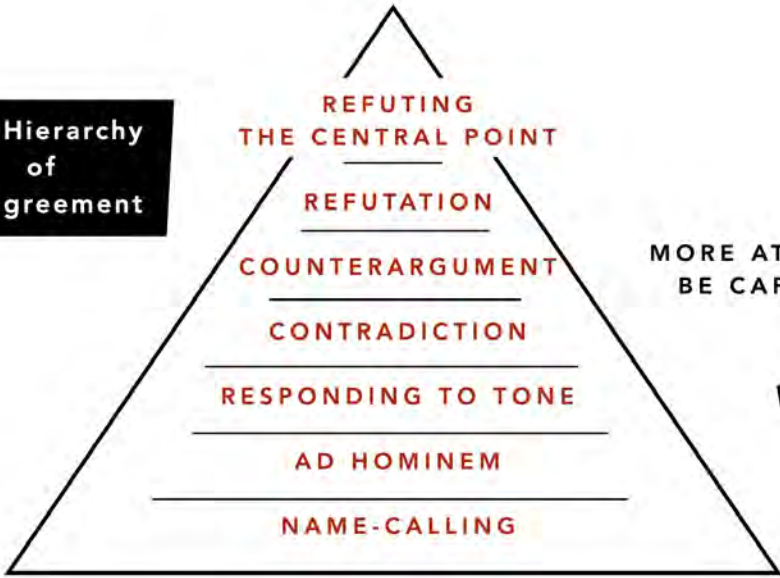
Moral Foundations Across Political Leanings



Chapter 12

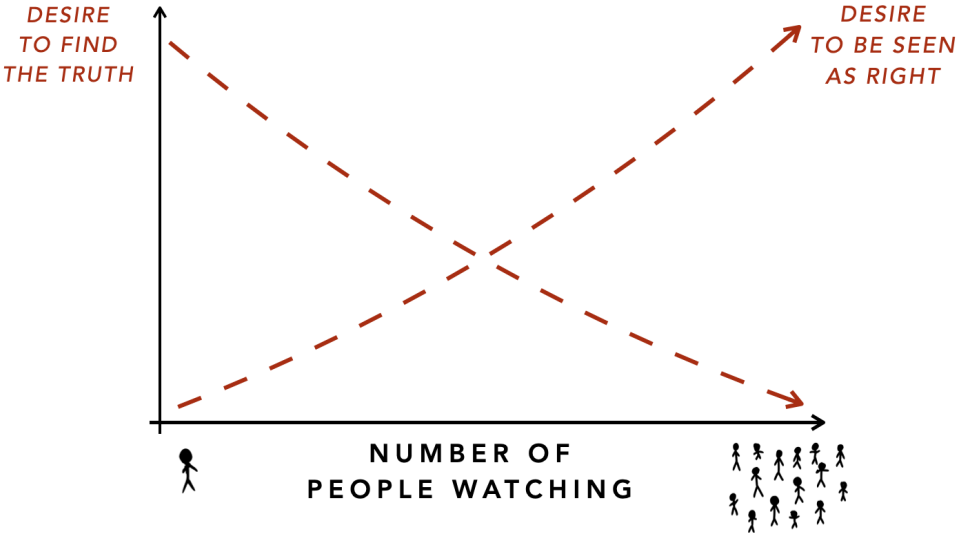
The Worst Room

The Hierarchy of Disagreement



Today there are more incentives to push conversations down the hierarchy.

Hidden Pressures of Disagreements



As the number of people watching increases, the desire to find the truth decreases in proportion to the desire to be seen as right



Nicholas Perry, left, and Nikocado, right, after several years of building a following on YouTube. Source: Nikocado Avocado YouTube Channel.

Chapter 13

Trauma, Processing & Cancellation

Timeline

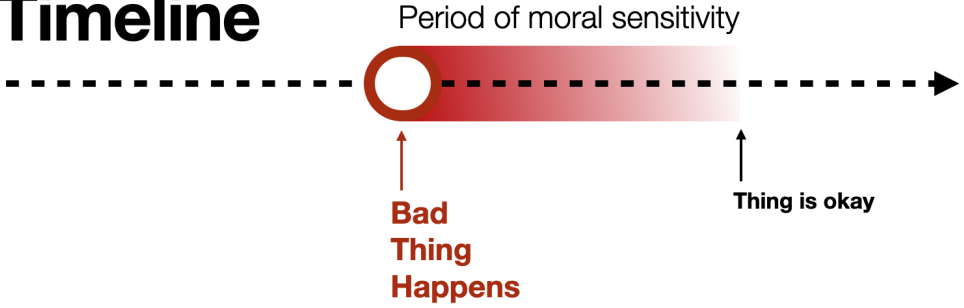
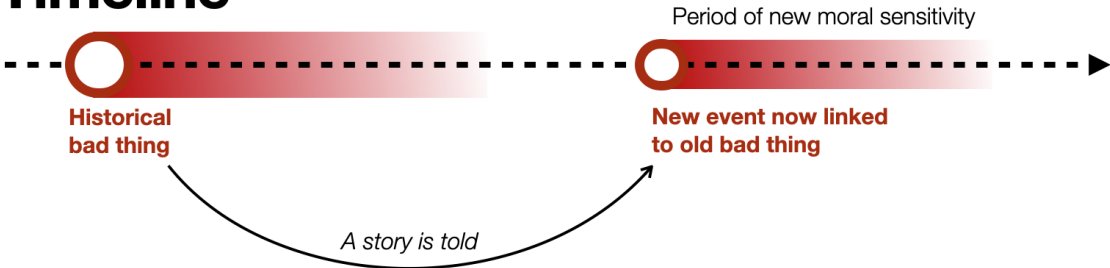
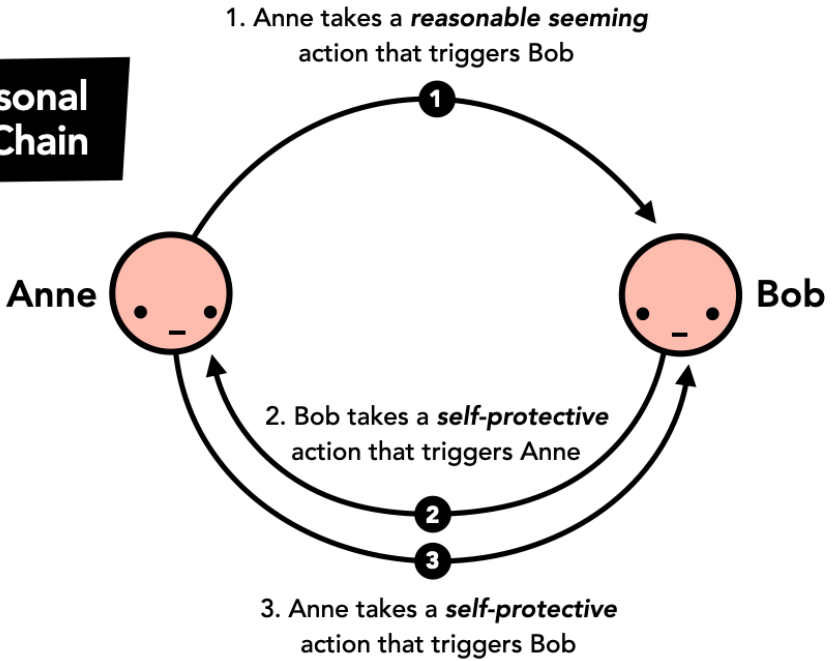


Illustration of "Comedy is tragedy plus time." As time passes, a visible traumatic event is followed by a period of increased sensitivity that eventually dissipates, after which it may be laughed about.

Timeline



Interpersonal Trigger-Chain



In a relationship, clashing traumas resemble a trigger-chain, in which one person's response triggers the others' trauma response. Adapted from Spencer Greenberg's graphic on Clash-ing Traumas, 2021

Period of moral sensitivity



People who
Think it's not ok

People who
Think it's ok

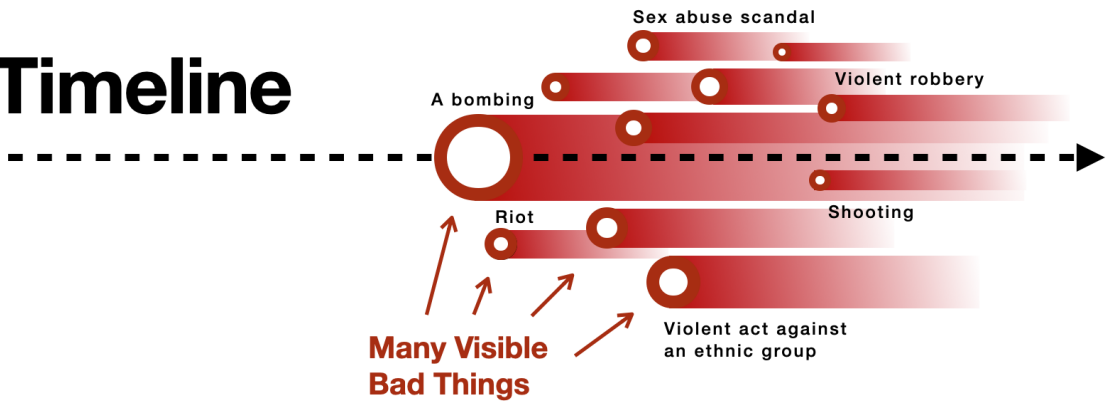
TENSION
LINE

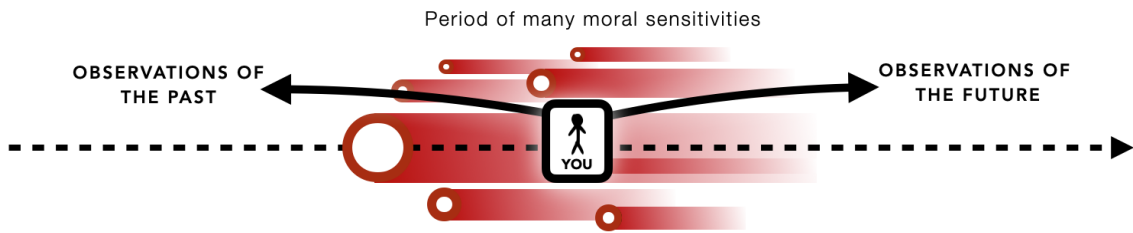
↑
Visible
Bad
Thing

Comedy happens when a small majority of an audience can laugh about the traumatic thing, forcing others to accept that it might be time to move on.

Timeline

Period of many moral sensitivities



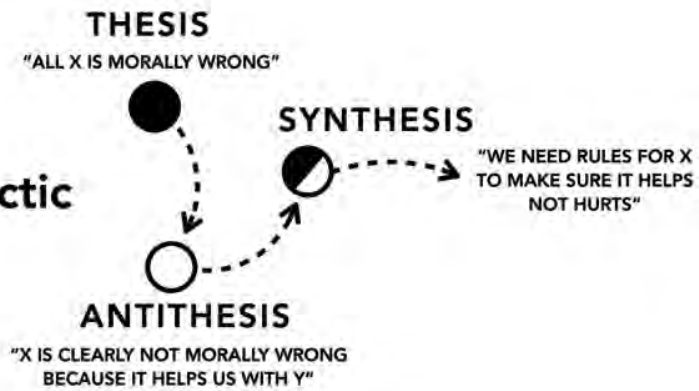


Our observations about the past and the future happen through the lens of current moral sensitivities, dramatically influencing our judgment of people, content, events and ideas

Chapter 14

The Waves of Moral Norms

The Hegelian Dialectic





He's one of the best-kept secrets in town. He'll tell you any day that he smokes 15 to 20 Camels a day. It's not because he's a doctor, and a healthy man has a lot to live for. It's because he's a doctor, and a healthy man has a lot to live for.

According to a recent Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

DOCTORS in every branch of medicine (14,000) a nationwide survey of 100,000 doctors, a study of cigarette preferences. Their leading smoking habit was Camels. The survey. The part of the survey that says in its own words, "Doctors!"

The best reason for this is Camels. The rich, full flavor and cool richness of Camels' special blend of choice tobaccos, as well as the many special to the smoking taste of doctors as an industry of great smokers. If you are a Camel smoker, this preference among doctors will hardly surprise you. If you are not, why not try Camels now.



Your "T-Loose" Will Tell You...

T for Tight...
T for Thrust...
That's your personal approval for any cigarette. Not if it's loose. Don't let your "T-Loose" be a "T-Loose".

CAMELS *Castles Tobacco*

Source: R.J. Reynolds Tobacco Company Advertisement, More doctors smoke Camels than any other cigarette, 1946.

If your husband ever finds out
you're not "store-testing" for fresher coffee...

... if he discovers you've
 with looking elsewhere
 or getting that stale coffee
 ... you be wads good?
 For today
 there's a safe
 and certain way
 to test for fresher
 before you buy



Here's how easy it is to be sure of fresher coffee

Look for the "New Day" Test of Chase & Sanborn - That's the surest way to be sure of fresher coffee. It's the only coffee that's guaranteed to be fresher than the rest.

Just do this:
 Press your thumb against the inner top layer of paper. If it's fresh, it will come off in a clean, smooth sheet. If it's stale, it will come off in a crumbly, uneven mass.

The advice you get you need!
 This isn't just a test. It's a test of the coffee's freshness. It's the only test that's guaranteed to be accurate. It's the only test that's guaranteed to be safe and reliable.

Here's the proof!
 Just as you press a coin, you'll see the test of Chase & Sanborn's coffee. It's the only test that's guaranteed to be accurate. It's the only test that's guaranteed to be safe and reliable.



"PRESSURE PACKED"
Chase & Sanborn

Source: Chase and Sanborn Coffee Advertisement in Life Magazine, If Your Husband Ever Finds Out You're Not "Store-Testing" For Fresher Coffee, 1952.

Iver Johnson
Revolvers

are not toys: they shoot straight and kill. You may need one only once in your lifetime: buy now, so you will have it at that time.

SAFETY \$6. HAMMERLESS AUTOMATIC

Send for Our fire arms encyclopaedia
IVER JOHNSON'S ARMS & CYCLE WORKS, FITCHBURG, MASS. U.S.A.



Absolutely Safe

ACCIDENTAL DISCHARGE IMPOSSIBLE

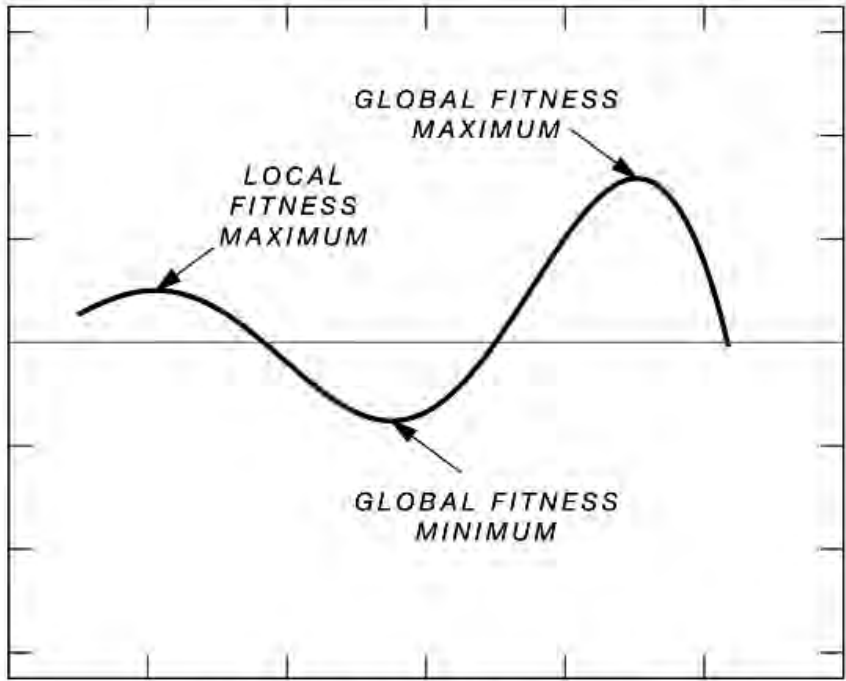
Papa says it won't hurt us!

Source: The Canadian Magazine, Iver Johnson Revolvers, 1904.

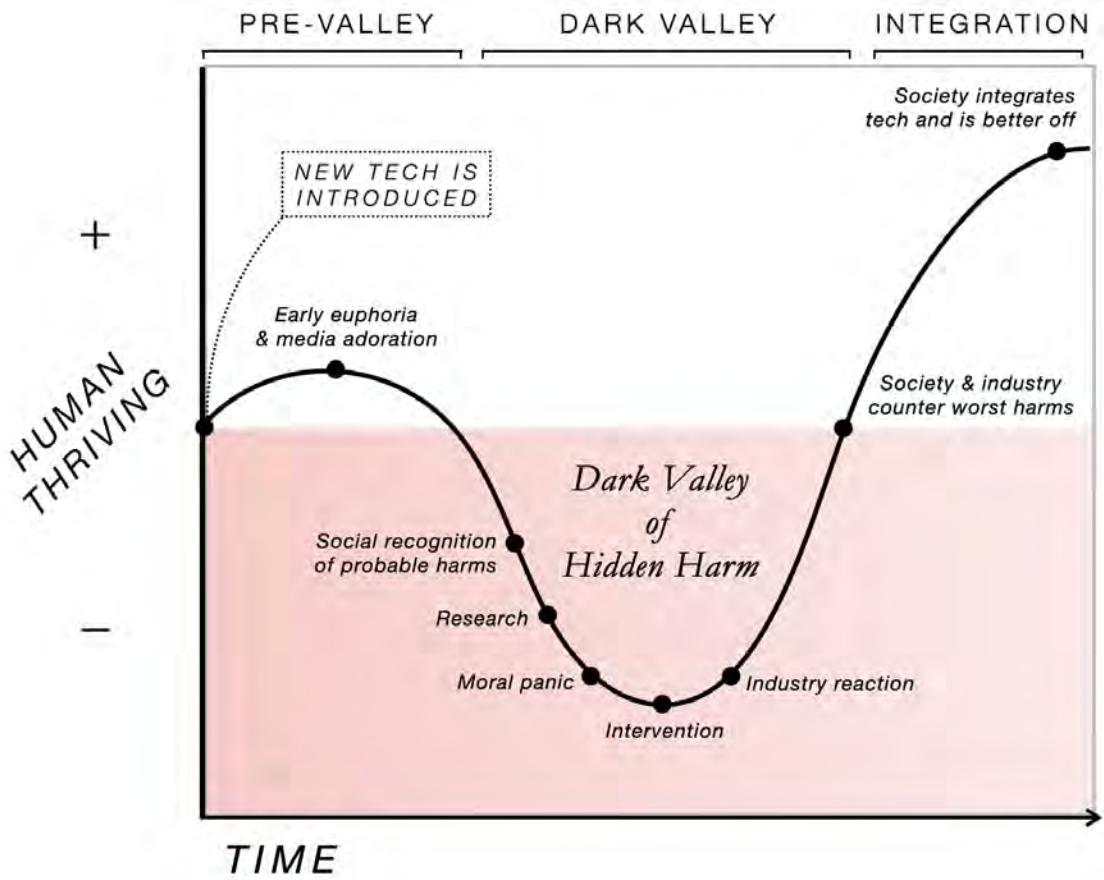
Chapter 15

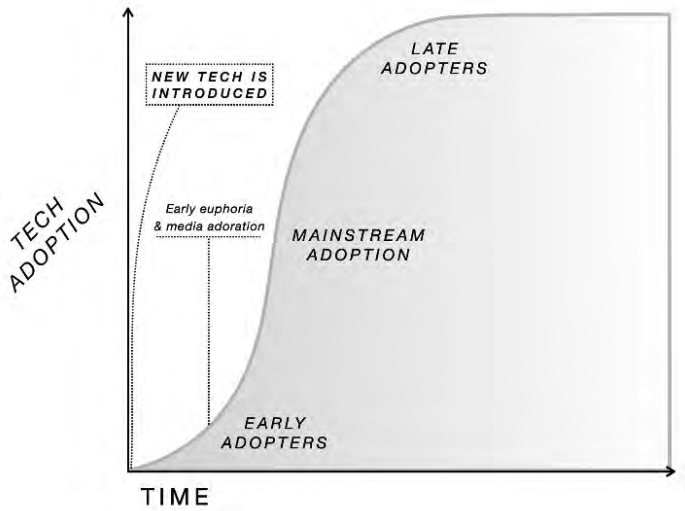
The Dark Valley

REPRODUCTIVE
SUCCESS

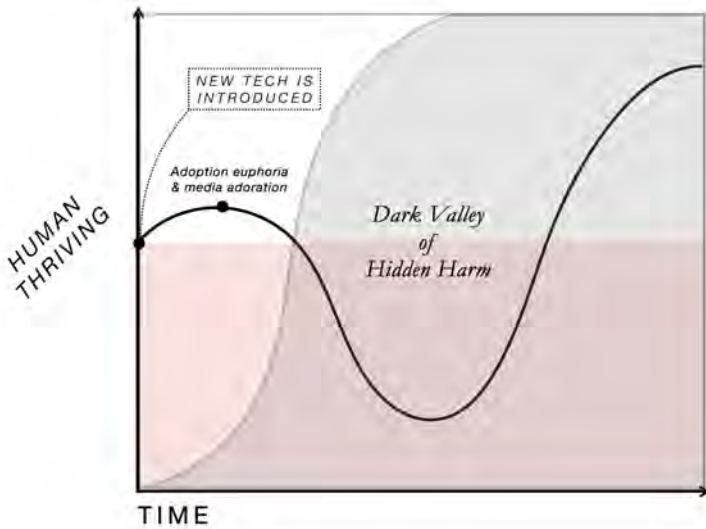


DIFFERENT PHENOTYPICAL TRAITS

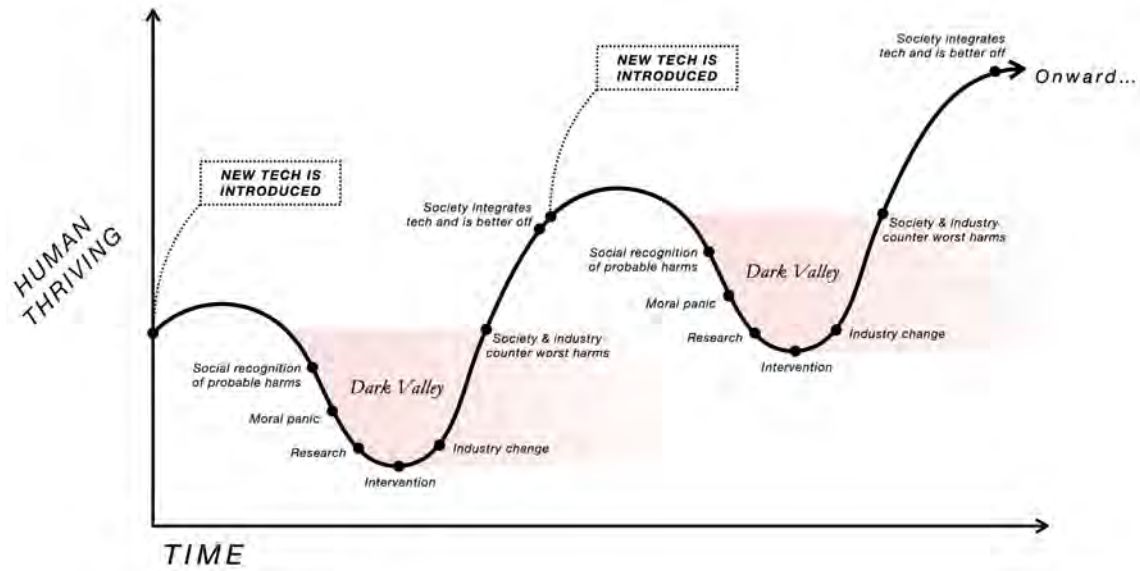




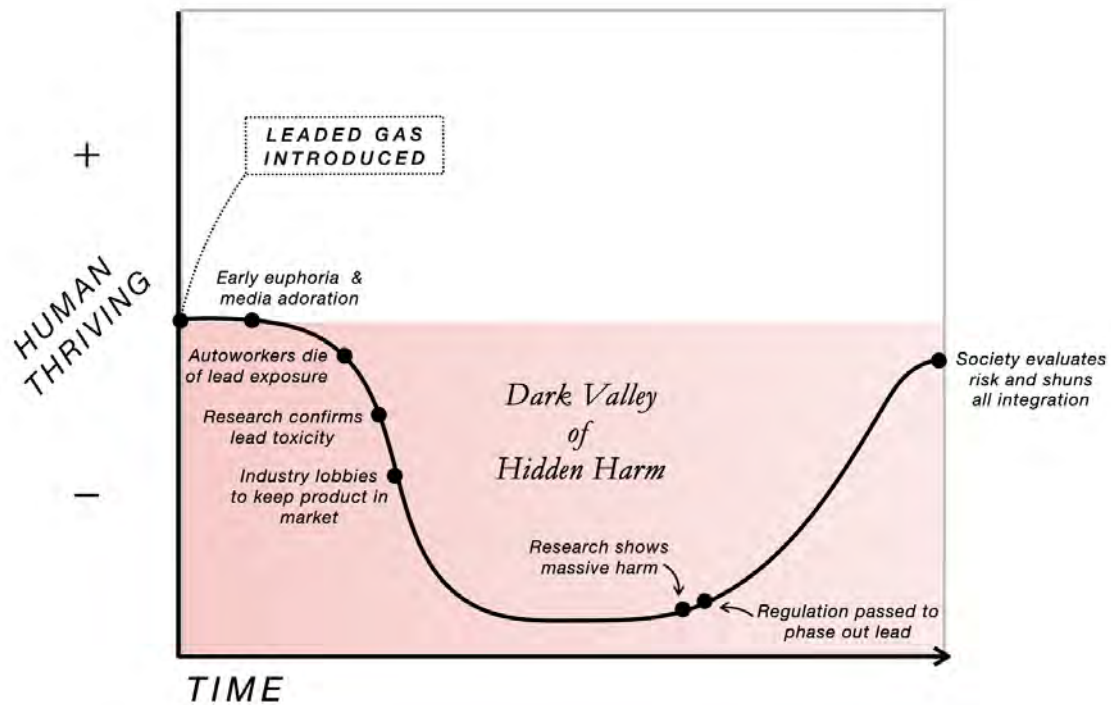
Adapted from Geoffrey A. Moore's book *Crossing the Chasm*.



The dark valley of harm is "hidden" because widespread harm is often obscured by the flood of new users, or industry lobbying to keep a product in mainstream usage.



Humans adapt to new technologies like a fitness landscape, reaching higher (or lower) as we integrate and move between technologies.



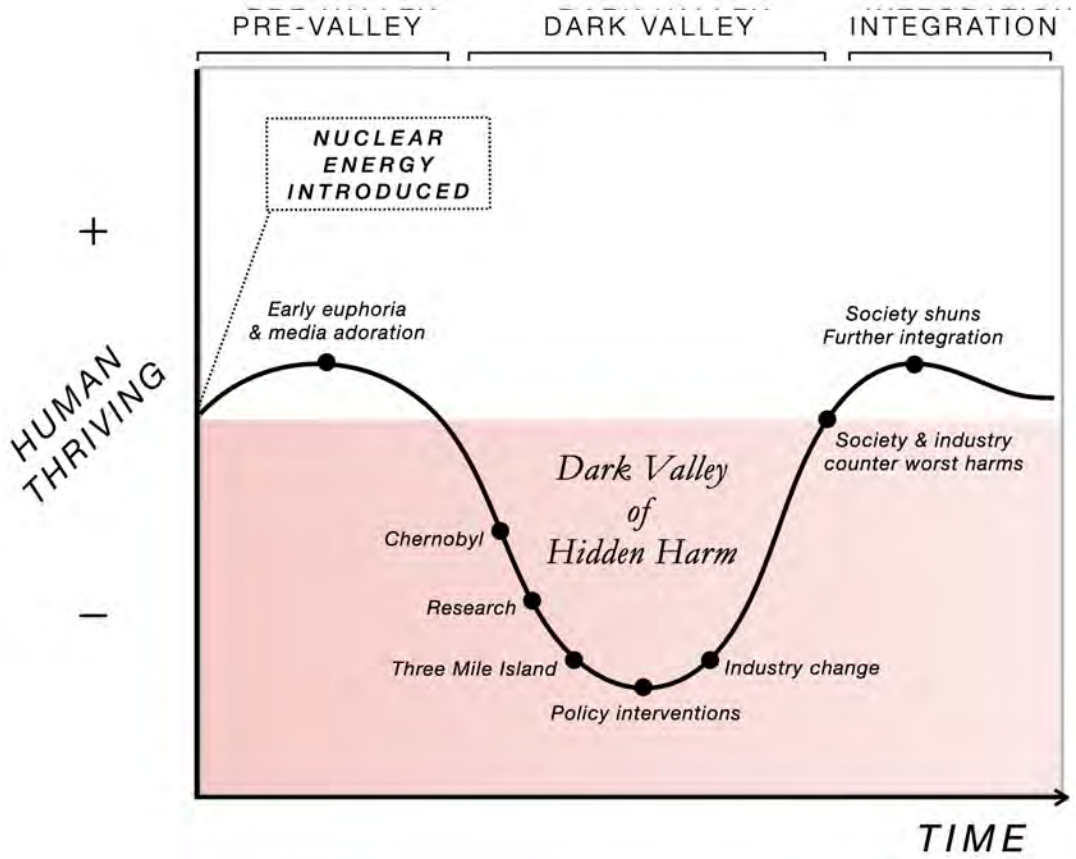




Illustration showing Eli Pariser's concept of the Filter Bubble.

Chapter 16

The Ancient History of Virality

How Rumor Works

Discover

Person learns
unverified information



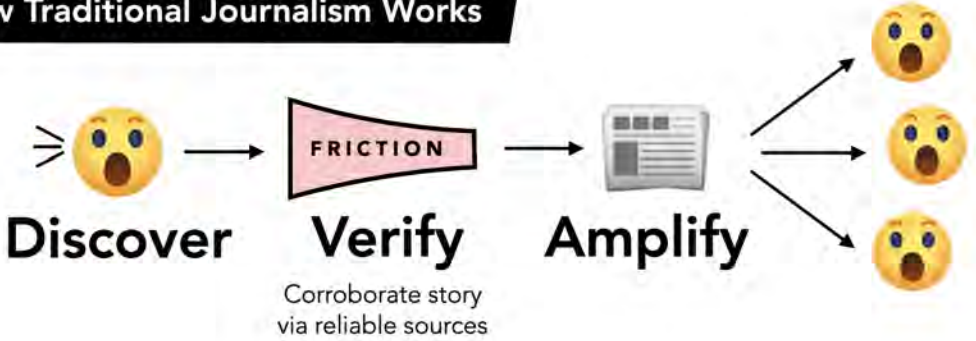
Amplify

Passes on information
to larger audience

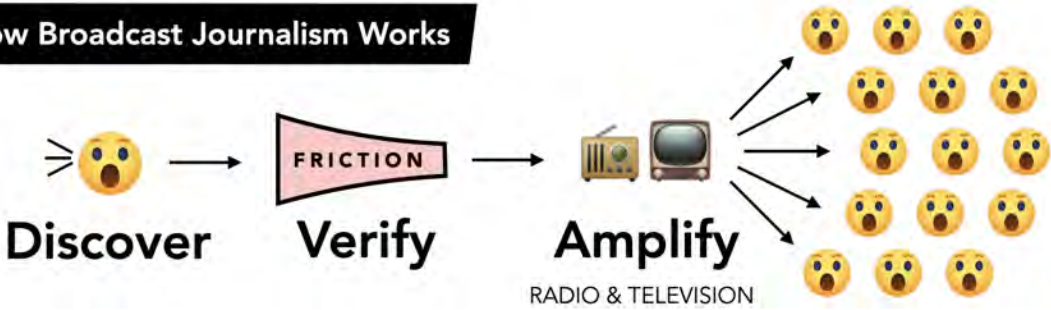


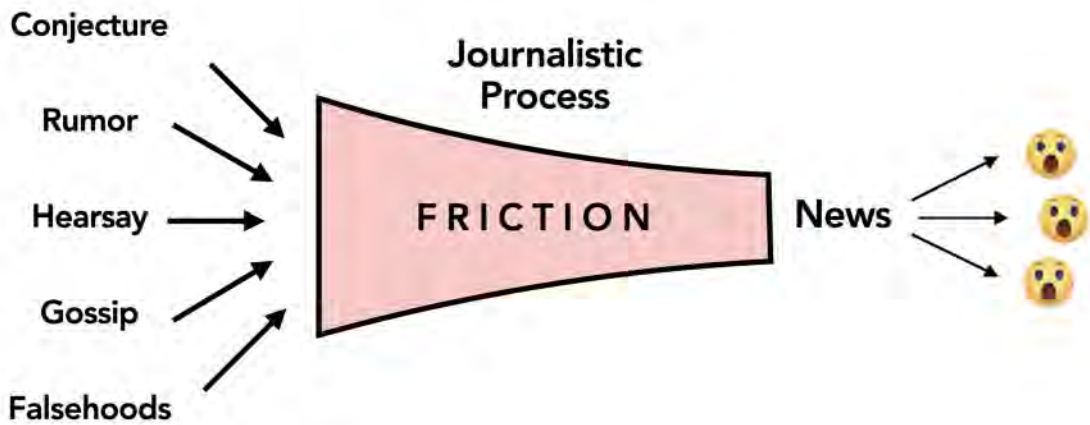
The term *rumor* describes a type of information cascade, a proposition for belief which comes from unverified sources.¹⁰

How Traditional Journalism Works



How Broadcast Journalism Works





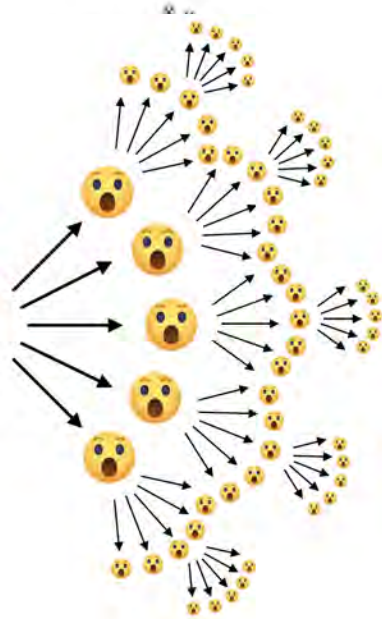
The epistemic funnel.

Viral Rumor on Social Media


Discover

FRICTIONLESS
SHARING
→


Amplify



Viral rumors today will often obtain greater reach than traditional media broadcasts.

Chapter 17

The First Twitter Thread



Chapter 18

American Outrage



The last Remains of
The PENNSYLVANIA JOURNAL,
Which departed this Life, the 31st. of October, 1765.
Of a STAMP in her Vitals,
Aged 23 Years.

Source: The Tombstone Edition: Pennsylvania, The Last Remains of The Pennsylvania Journal, 1765.

The BLOODY MASSACRE perpetrated in King Street BOSTON on March 5th 1770 by a party of the 29th REG^t



Engraved Printed & Sold by PAUL REVERE BOSTON

Unhappy Boston! see thy Sons deplore,
 Thy hallow'd Walks be near'd with guiltless Gore;
 While faithless P—n and his savage Bands,
 With murderous Rancour stretch their bloody Hands,
 Like fierce Barbarians grinning o'er their Prey,
 Approve the Carnage, and enjoy the Day.

If scalding drops from Rage from Anguish Wring,
 If speechless Sorrows lab'ring for a Tongue,
 Or if a weeping World can ought appease,
 The plaintive Ghosts of Victims such as these;
 The Patriot's copious Tears for each are shed,
 A glorious Tribute which embalms the Dead.

But know, Extremities to that awful Goal,
 Where JUSTICE strips the Murderer of his Soul;
 Should venal Co—ts the scandal of the Land,
 Snatch the relentless Villain from her Hand,
 Keep Execration on this Plate inscrib'd,
 Shall reach a JUDGE who never can be brib'd.

The unhappy Sufferers were M^{rs} SAM^l GRAY, SAM^l MAVERICK, JAM^s CALDWELL, CRISPUS ATTUCKS & PAT^l CARR
 Killed. Six wounded two of them (CHRIST^l MONK & JOHN CLARK) Mortally

Source: Paul Revere, The Bloody Massacre Perpetrated in King Street Boston on March 5th 1770 by a Party of the 29th Regt., 1770, Boston Gazette.

Chapter 19

How Advertising Created Newspapers



The Valley of the Shadow of Death, Crimea, Ukraine, 1855. One of the the first war photographs. Researchers found that Fenton very likely took the empty road photo first, and then moved the cannonballs onto the road to create a more dramatic image. The dramatic version was what was published. Photos by Roger Fenton.

Chapter 20

The Dark Valley of Radio

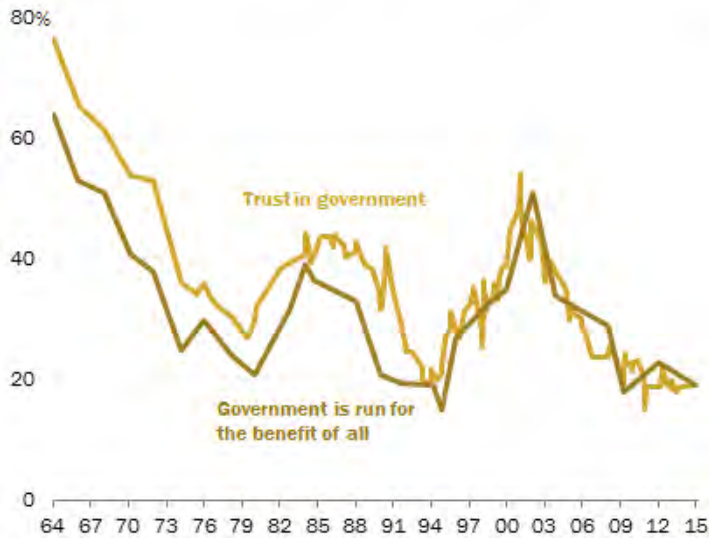


Advertisement for Nazi Germany's Volksempfänger, or "people's receiver," 1933.

Chapter 21

Television, Chaos, and the Collective

Trust in government and perceptions of government fairness

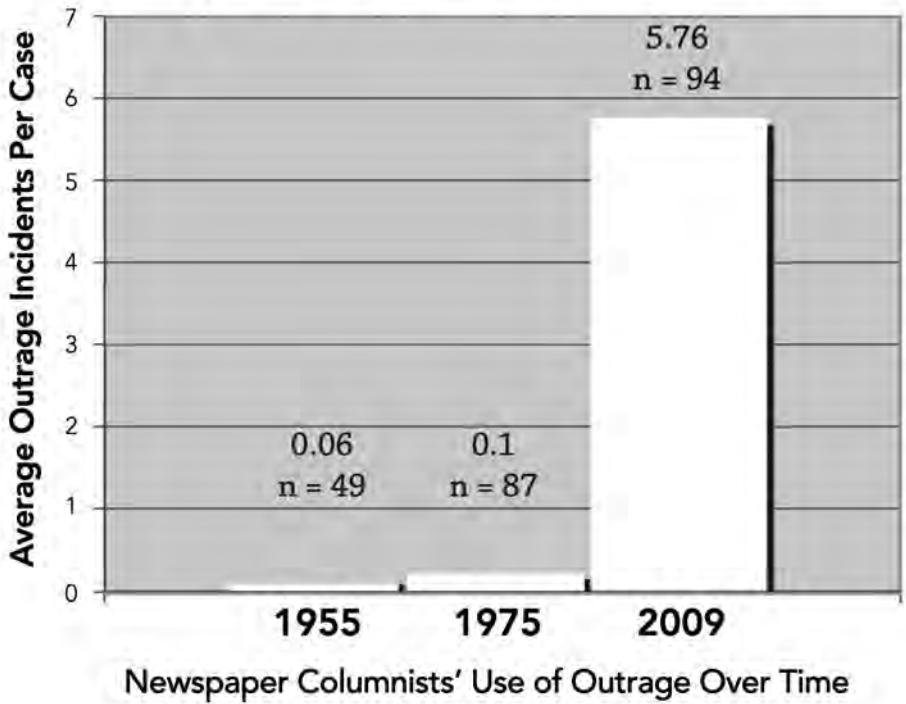


Survey conducted Aug. 27-Oct. 4, 2015, Q15. Trust trend sources: Pew Research Center, National Election Studies, Gallup, ABC/Washington Post, CBS/New York Times, and CNN Polls. Trend line represents a three-survey moving average.

Government fairness trend sources: National Election Studies and CBS/New York Times polls. Annual means calculated for years with more than one poll.

PEW RESEARCH CENTER

Newspaper Column Outrage Levels



Source: Adapted from Sobieraj and Berry 2011

Chapter 22

How We Learn the Truth

The Three "C"s of Journalism

"WHAT DOES IT MEAN?"

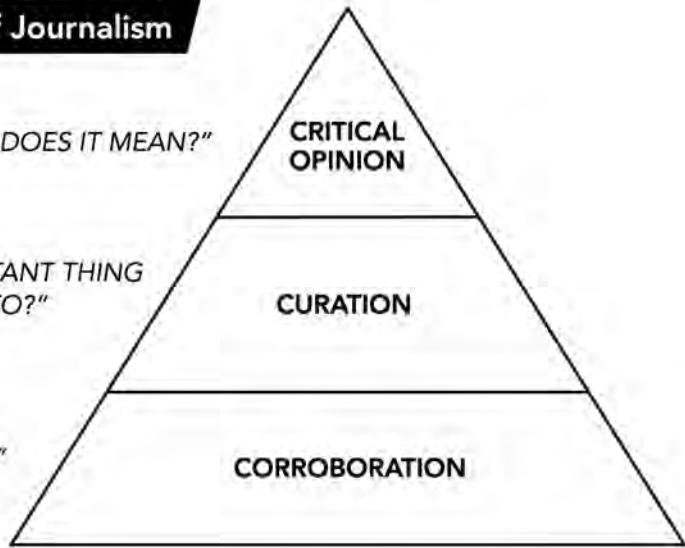
**CRITICAL
OPINION**

*"WHAT IS THE MOST IMPORTANT THING
TO PAY ATTENTION TO?"*

CURATION

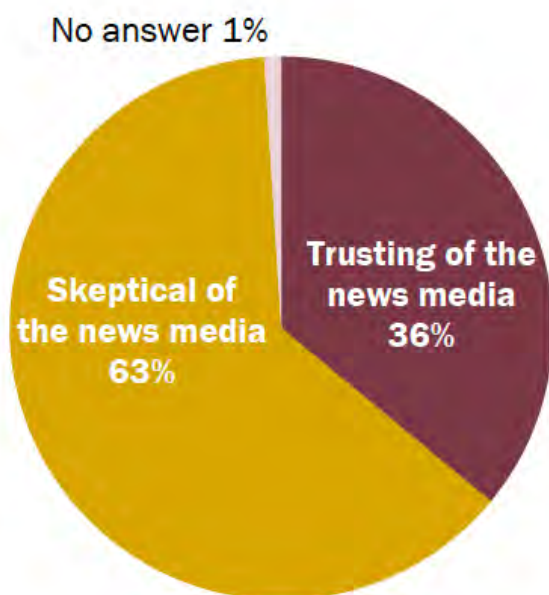
"DID ANY OF IT REALLY HAPPEN?"

CORROBORATION



Most Americans think skepticism of the news media is good for society

% of U.S. adults who say that, ideally, it's better for society if the American public is ...



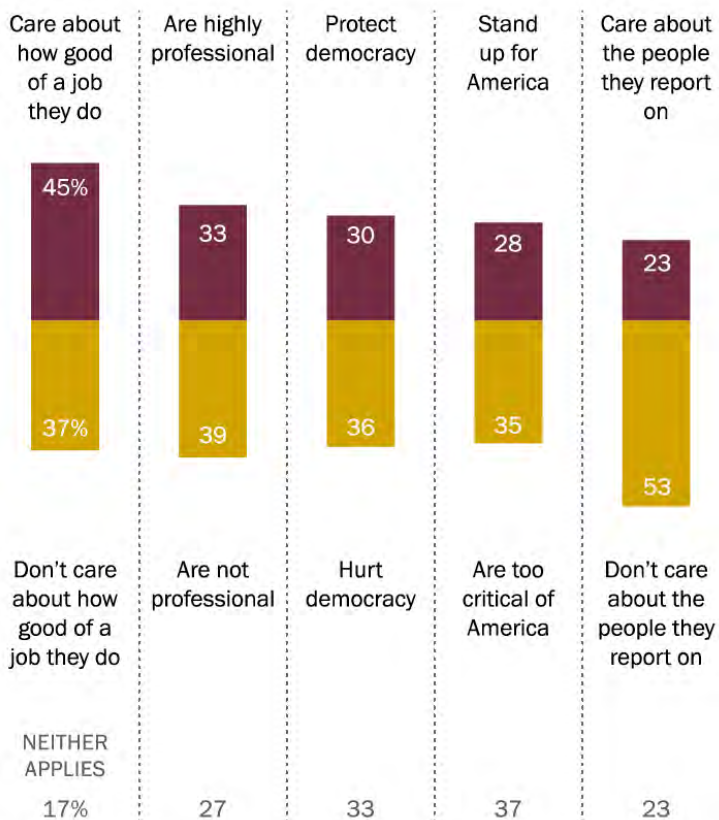
Source: Survey of U.S. adults conducted Feb. 18-March 2, 2020.

"Americans See Skepticism of News Media as Healthy, Say Public Trust in the Institution can Improve"

PEW RESEARCH CENTER

Americans are often more negative than positive about the news media's role in society, standards

% of U.S. adults who say news organizations ...



Note: Respondents who did not give an answer not shown.

Source: Survey of U.S. adults conducted Feb. 18-March 2, 2020.

"Americans See Skepticism of News Media as Healthy, Say Public Trust in the Institution can Improve"

PEW RESEARCH CENTER

The Services Journalism Provides

*"Straight"
News*

- 1 **Corroboration** — *Verification of what actually happened*
- 2 **Curation** — *Selection of important events*

----- EDITORIAL WALL -----

*Subjective
Interpretation*

- 3 **Critical Opinion** — *Analysis, Editorials, Perspective*

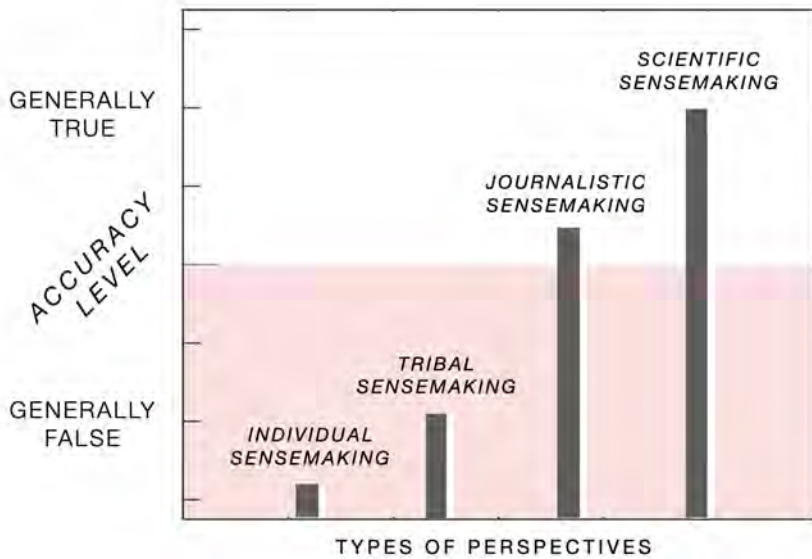
Table. Number of Deaths for Leading Causes of Death, US, 2015-2020^a

Cause of death	No. of deaths by year					
	2015	2016	2017	2018	2019	2020
Total deaths	2 712 630	2 744 248	2 813 503	2 839 205	2 854 838	3 358 814
Heart disease	633 842	635 260	647 457	655 381	659 041	690 882
Cancer	595 930	598 038	599 108	599 274	599 601	598 932
COVID-19 ^b						345 323
Unintentional injuries	146 571	161 374	169 936	167 127	173 040	192 176
Stroke	140 323	142 142	146 383	147 810	150 005	159 050
Chronic lower respiratory diseases	155 041	154 596	160 201	159 486	156 979	151 637

Source: JAMA⁷

Chapter 23

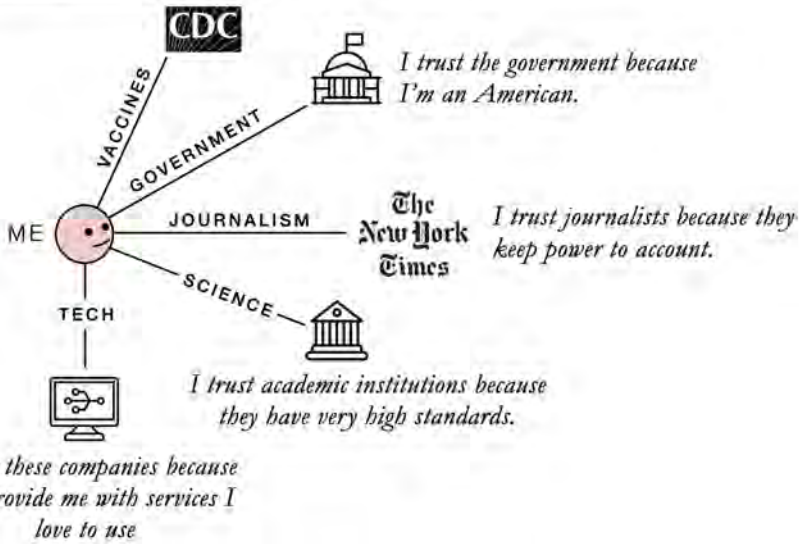
Trust and Truth



Degrees of accuracy in types of sensemaking.

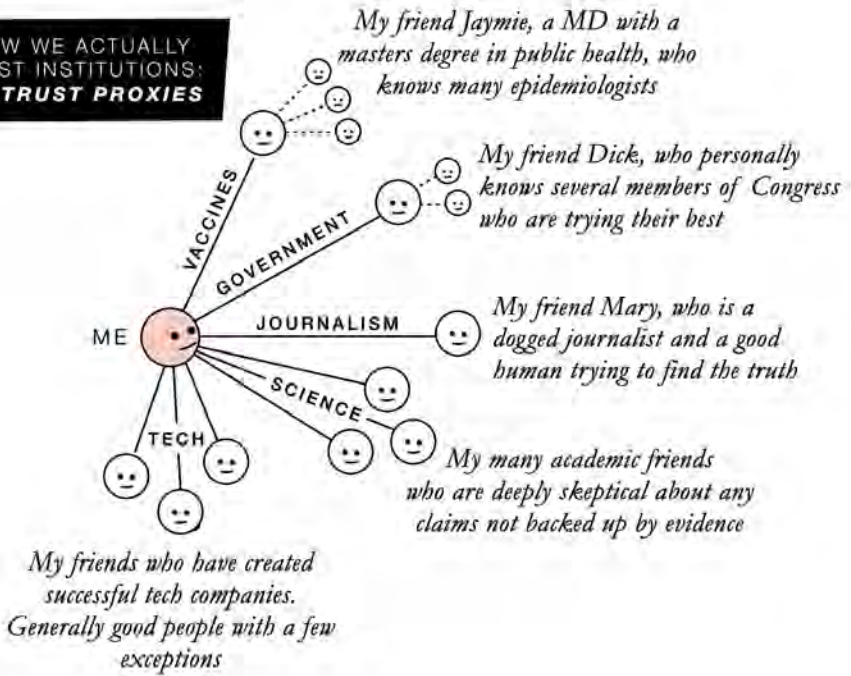
**HOW WE ASSUME
INSTITUTIONAL TRUST
WORKS**

*I trust the CDC because it
has my best interests in mind.*

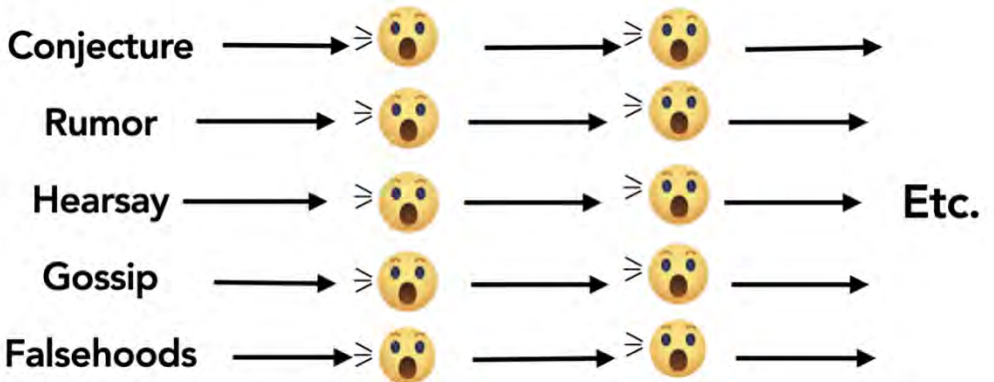
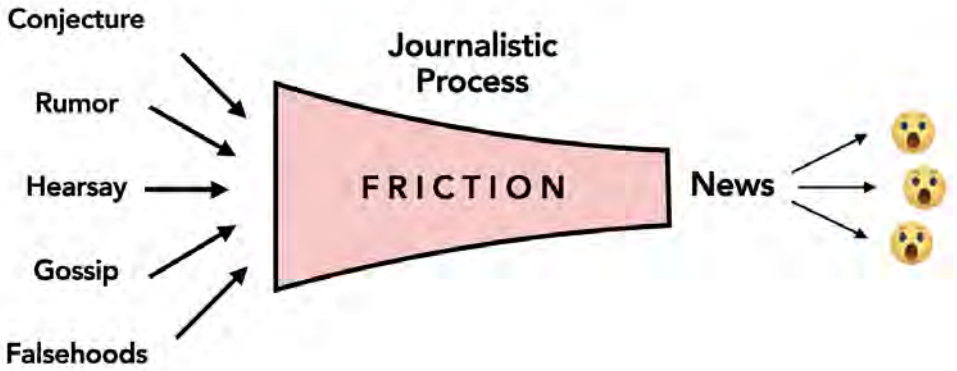


Why we think we trust institutions.

HOW WE ACTUALLY TRUST INSTITUTIONS: VIA **TRUST PROXIES**



We use trust proxies to validate institutions that we have no direct access to. On social media, these can also be influencers we trust and follow, but do not know personally.



Chapter 26

What's at Stake

THE SOCIAL CONTRACT

GIVE UP FREEDOMS



HOBBIAN CONTRACT

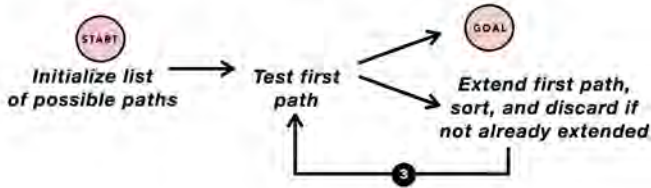
GIVE UP FREEDOMS



Chapter 27

The Machine Called Democracy

BRANCH & BOUND SORTING



The algorithm explores branches of the pathway, which represent subsets of the possible solution set. Before identifying the solution, the branch is checked against bounds on the optimal solution, and is discarded if it cannot produce a better solution than the best one found so far by the algorithm.

A DEMOCRATIC ALGORITHM

