What's the Story?

Last updated: 2020/09/12, 14:01:53 EDT

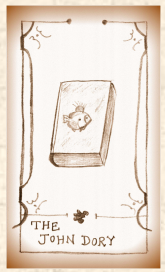
Principles of Complex Systems, Vol. 1 | @pocsvox
CSYS/MATH 300, Fall, 2020

Prof. Peter Sheridan Dodds | @peterdodds

Computational Story Lab | Vermont Complex Systems Center
Vermont Advanced Computing Core | University of Vermont

Licensed under the *Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License*.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



These slides are brought to you by:

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

These slides are also brought to you by:

Special Guest Executive Producer

On Instagram at pratchett_the_cat

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Outline

Storytellers

Stories

Power

Taxonomy

Essence

Memory & Turbulence

Emotional Arcs

Moving ahead

References

Storytellers

Stories

Power

Taxonomy

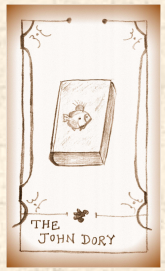
Essence

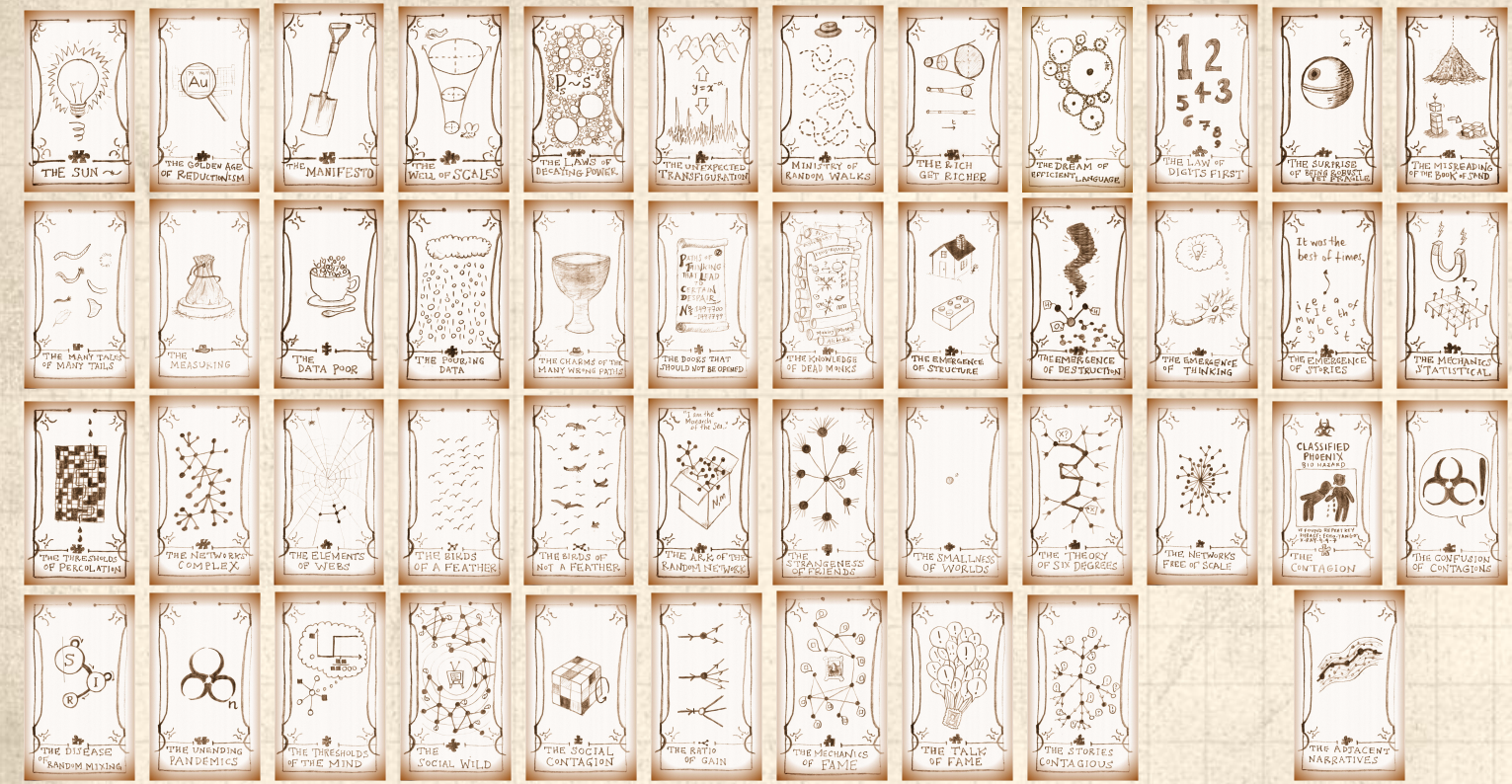
Memory & Turbulence

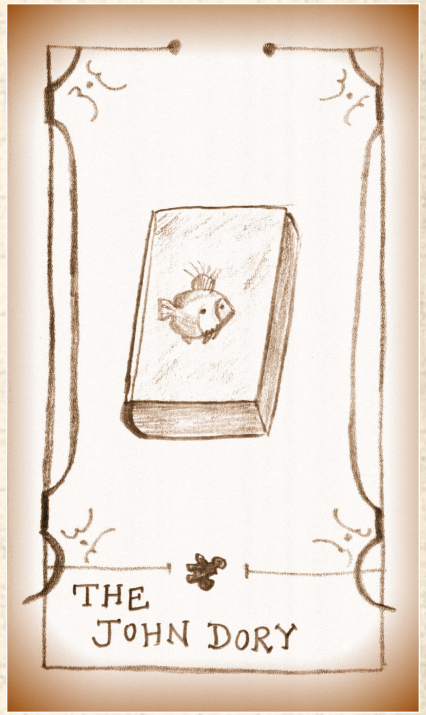
Emotional Arcs

Moving ahead

References

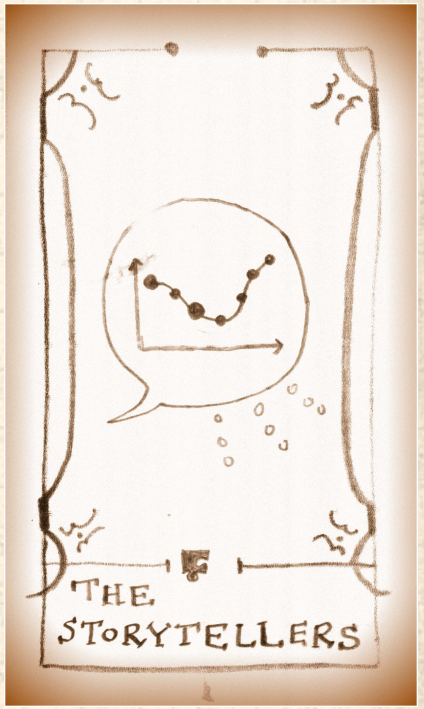



THE SUN
THE GOLDEN AGE OF REDUCTIONISM
THE MANIFESTO
THE WELL OF SCALES
THE LAWS OF DECAYING POWER
THE UNEXPECTED TRANSFIGURATION
MINISTRY OF RANDOM WALKS
THE RICH GET RICHER
THE DREAM OF EFFICIENT LANGUAGE
THE LAW OF DIGITS FIRST
THE SURPRISE OF BEING BORROWED AND BLUE
THE MISREADING OF THE BOOK OF SAND
THE MANY TALES OF MANY TAILS
THE MEASURING
THE DATA POOR
THE POOLING DATA
THE CHARMS OF THE MANY VIRING PATHS
THE BOOKS THAT SHOULD NOT BE OPENED
THE KNOWLEDGE OF DEAD MANKS
THE EMERGENCE OF STRUCTURE
THE EMERGENCE OF DESTRUCTION
THE EMERGENCE OF THINKING
It was the best of times,
THE EMERGENCE OF STORIES
THE MECHANICS STATISTICAL
THE THRESHOLDS OF PERCOLATION
THE NETWORKS COMPLEX
THE ELEMENTS OF WEBS
THE BIRDS OF A FEATHER
THE BIRDS OF NOT A FEATHER
THE ARK OF THE RANDOM NETWORK
THE STRANGENESS OF FRIENDS
THE SMALLNESS OF WORLDS
THE THEORY OF SIX DEGREES
THE NETWORKS FREE OF SCALE
CLASSIFIED PHOENIX BIO HAZARD
THE CONTAGION
THE CONFUSION OF CONTAGIONS
THE DISEASE OF RANDOM MIXING
THE UNENDING PANDEMICS
THE THRESHOLDS OF THE MIND
THE SOCIAL WILD
THE SOCIAL CONTAGION
THE RATIO OF GAIN
THE MECHANICS OF FAME
THE TALK OF FAME
THE STORIES CONTAGIOUS
THE ADJACENT NARRATIVES


THE JOHN DORY

THE STORYTELLERS
THE FATED CENTRAL PATH
THE PATHS OF UNIVERSALITY
THE DEPENDENT PATHS
THE TROUBLES OF BIFURCATING REALITIES
THE UNKNOWN MECHANISM
THE LANDSCAPE OF FORKING PATHS
THE NETWORKS OF BLOOD
THE TREES OF REALITY
THE ORDERS OF STREAMS
THE LAWS OF BRANCHING
THE SCALING OF BROKEN HIERARCHIES
THE BRAID OR THE BRANCH
THE LAW OF OPTIMAL FORKS
THE CHURCH OF QUARTEROLOGY
THE TRUTHICIDE
THE FAMILY OF PANCAKE COWS
THE FAMILY OF SPHERICAL COWS
THE IMPROBABLE PACHYDERM
THE ILL-SCALING OF ALLOMETRIC BODIES
THE SUPPLY MOST FAIR
THE SUPPLY TO THE MOST
THE DARK ART OF GENERATING FUNCTIONS
THE RANDOM SUM OF RANDOMNESS
THE TWO-SIDED WORLDS
THE STORIES AND THE TROPES
THE TRUTH OF DIFFUSION
THE UNVEILING OF HIDDEN POWERS
THE SCRYING FOR THE SHAPES OF THINGS
THE LIMITS OF ORGANIZATIONS
THE OVERCOMING OF CATASTROPHE
THE TROUBLES ILL-FORMED
THE NETWORKS OF MANY ILKS
THE CHAOS OF FETTERED CONTAGION
THE END

THE SUN
THE GOLDEN AGE OF REDUCTIONISM
THE MANIFESTO
THE WELL OF SCALES
THE LAWS OF DECAYING POWER
THE UNEXPECTED TRANSFIGURATION
MINISTRY OF RANDOM WALKS
THE RICH GET RICHER
THE DREAM OF EFFICIENT LANGUAGE
THE LAW OF DIGITS FIRST
THE SURPRISE OF BEING ROBUST YET FRAGILE
THE MISREADING OF THE BOOK OF SAND
THE MANY TALES OF MANY TAILS
THE MEASURING
THE DATA POOR
THE POURING DATA
THE CHARMS OF THE MANY WRONG PATHS
THE DOORS THAT SHOULD NOT BE OPENED
THE KNOWLEDGE OF DEAD MONKS
THE EMERGENCE OF STRUCTURE
THE EMERGENCE OF DESTRUCTION
THE EMERGENCE OF THINKING
THE EMERGENCE OF STORIES
THE MECHANICS STATISTICAL
THE THRESHOLDS OF PERCOLATION
THE NETWORKS COMPLEX
THE ELEMENTS OF WEBS
THE BIRDS OF A FEATHER
THE BIRDS OF NOT A FEATHER
THE ARK OF THE RANDOM NETWORK
THE STRANGENESS OF FRIENDS
THE SMALLNESS OF WORLDS
THE THEORY OF SIX DEGREES
THE NETWORKS FREE OF SCALE
THE CONTAGION
THE CONFUSION OF CONTAGIONS
THE DISEASE OF RANDOM MIXING
THE UNENDING PANDEMICS
THE THRESHOLDS OF THE MIND
THE SOCIAL WILD
THE SOCIAL CONTAGION
THE RATIO OF GAIN
THE MECHANICS OF FAME
THE TALK OF FAME
THE STORIES CONTAGIOUS
THE JOHN DORY
THE ADJACENT NARRATIVES
THE FATED ASTRAL PATH
THE PATHS OF UNIVERSALITY
THE DEPENDENT PATHS
THE TROUSERS OF BIFURCATING REALITIES
THE UNKNOWN MECHANISM
THE LANDSCAPES OF FORKING PATHS
THE NETWORKS OF BLOOD
THE TREES OF REALITY
THE ORDERS OF STREAMS
THE LAWS OF BRANCHING
THE SCALING OF BROKEN HIERARCHIES
THE BRAID OR THE BRANCH
THE LAW OF OPTIMAL FORKS
THE CHURCH OF QUARTEROLOGY
THE TRUTHICIDE
THE FAMILY OF PANCAKE COWS
THE FAMILY OF SPHERICAL COWS
THE IMPROBABLE PACHYDERM
THE ILL-SCALING OF ALLOMETRIC BODIES
THE SUPPLY MOST FAIR
THE SUPPLY TO THE MOST
THE DARK ART OF GENERATING FUNCTIONS
THE RANDOM SUM OF RANDOMNESS
THE TWO-SIDED WORLDS
THE STORIES AND THE TROPES
THE TRUTH OF DIFFUSION
THE UNVEILING OF HIDDEN POWERS
THE SCRYING FOR THE SHAPES OF THINGS
THE LIMITS OF ORGANIZATIONS
THE OVERCOMING OF CATASTROPHE
THE TROUBLES ILL-FORMED
THE NETWORKS OF MANY ILKS
THE CHAOS OF FETTERED CONTAGION
THE END


THE STORYTELLERS

Super Survival of the Stories:

The Desirability of Storytellers, The Atlantic, Ed Yong, 2017-12-05.

- Study of Agta, Filipino hunter-gatherers.
- Storytelling valued well above all other skills including hunting.
- Stories encode prosocial norms such as cooperation.
- Like the best stories, the best storytellers reproduce more successfully.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

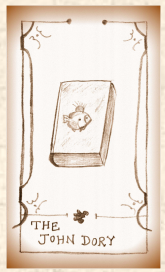
Major competing storytelling entities:

- News.
- Books, magazines.
- Art.
- Music industry.
- Television, movie studios, Netflix, HBO, Disney.
- Social media: Facebook, Instagram, Snapchat, ...
- All sport.
- Video games.
- Religions, ideologies, belief systems, Freemasons, ...
- Enduring coherent groups: Cultures, countries, cities, ...

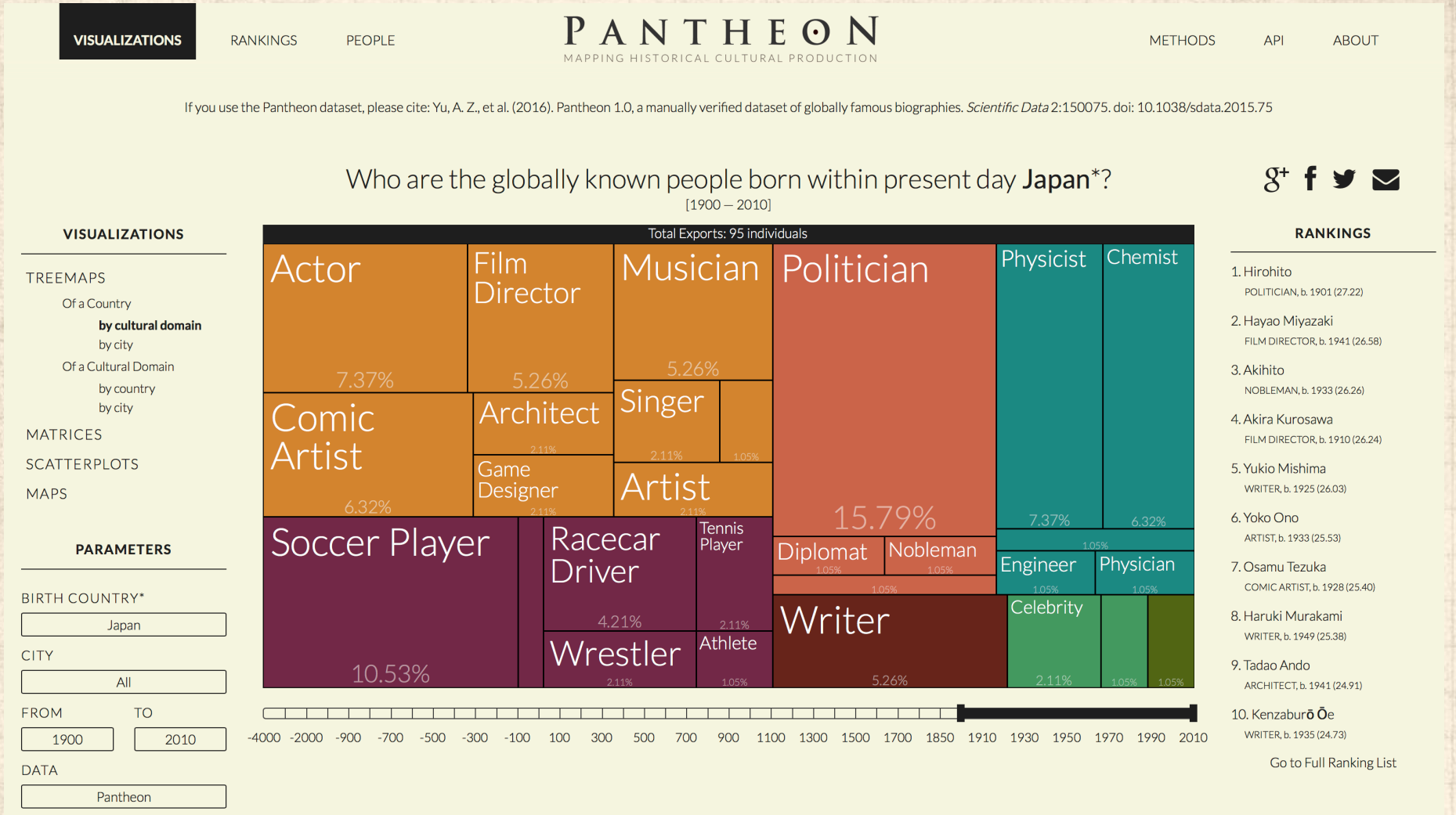
Cultural products from Pantheon:

- Writers, artists, movie directors, video game directors.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



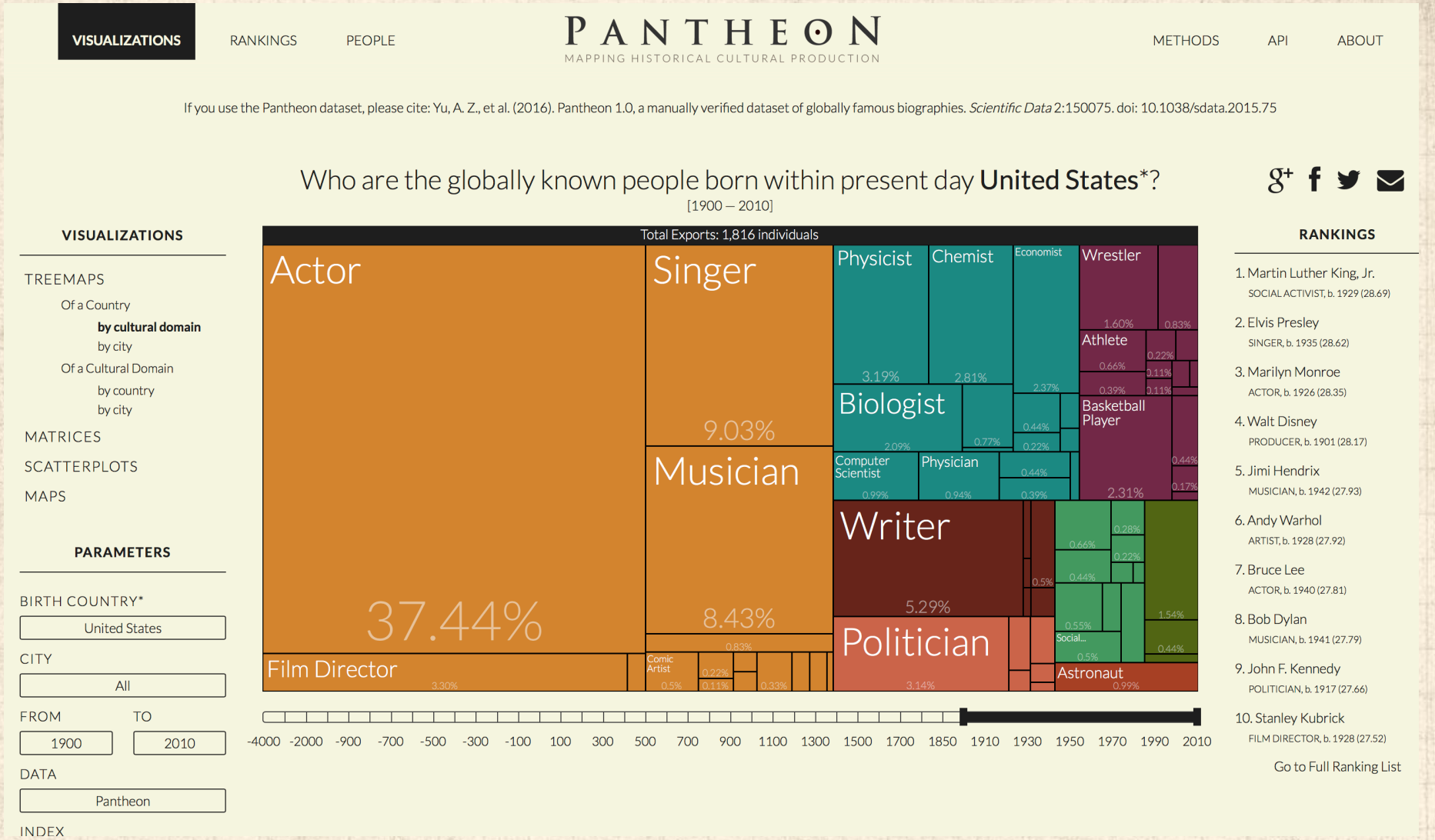
The famous are storytellers—Japan:



For people born 1950–

http://pantheon.media.mit.edu/treemap/country_exports/JP/all/1900/2010/H15/pantheon

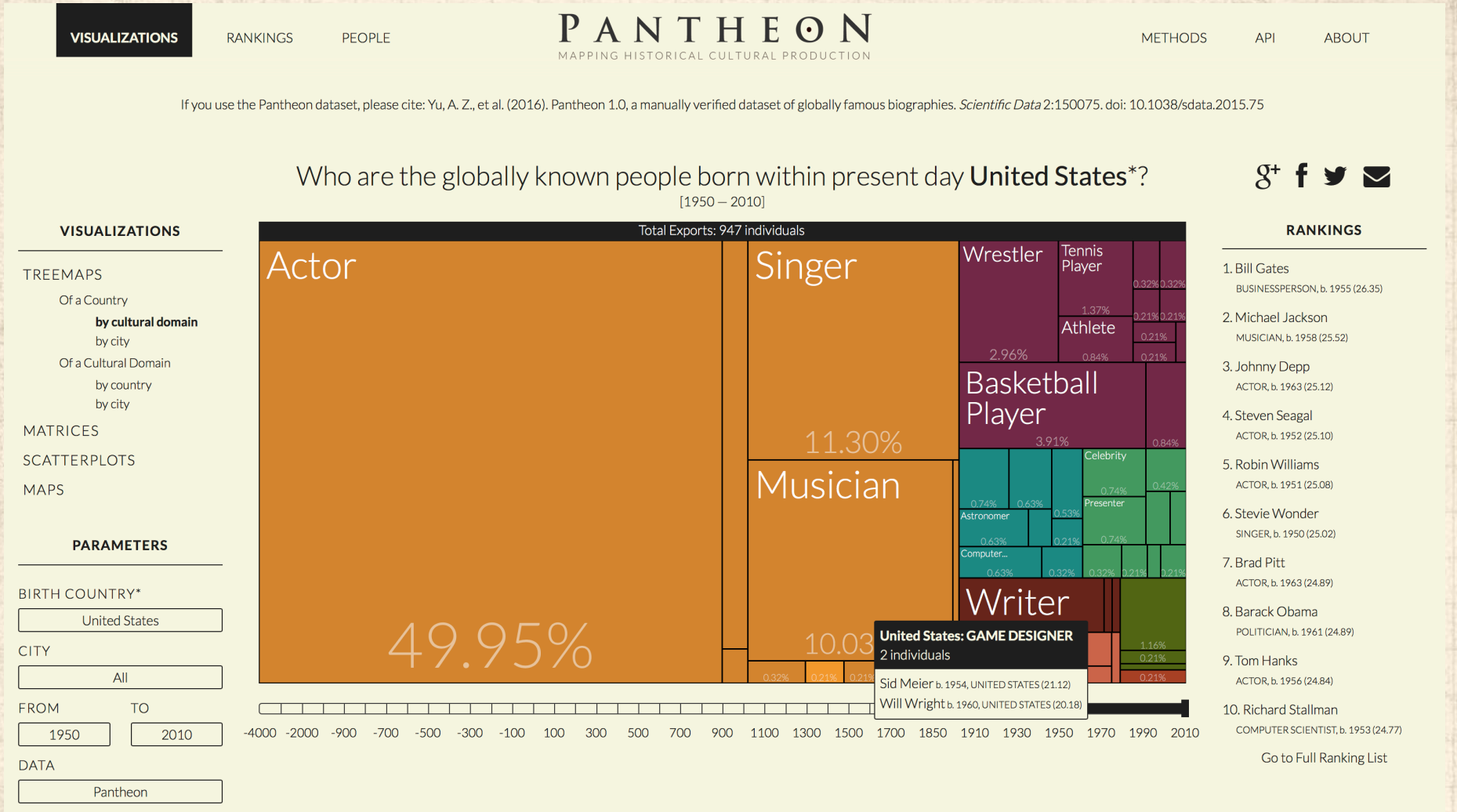
The famous are storytellers—United States:



For people born 1950–

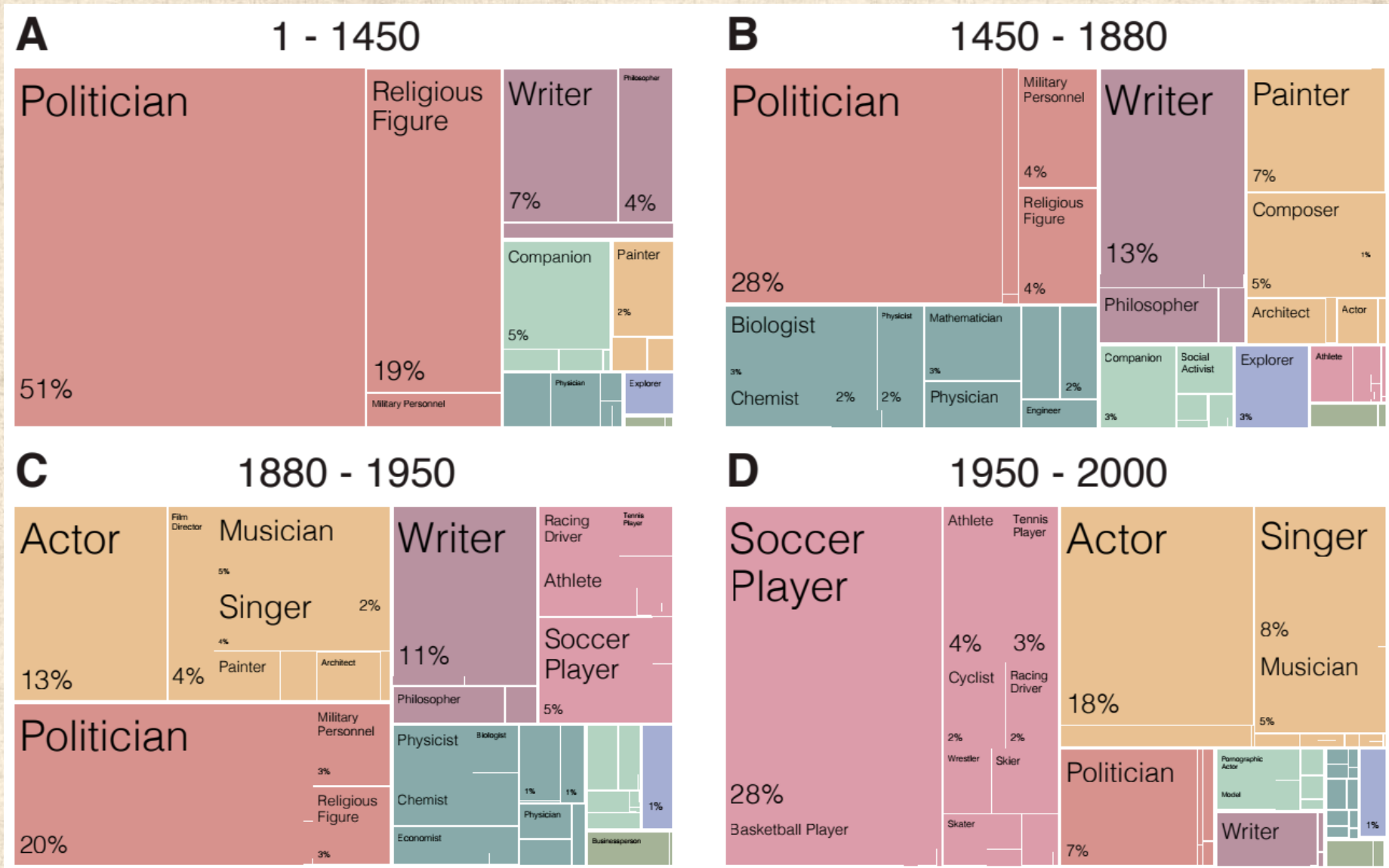
http://pantheon.media.mit.edu/treemap/country_exports/US/all/1950/2010/H15/pantheon

Storytellers win:



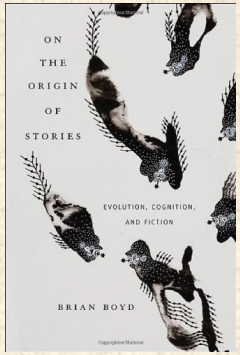
For people born 1950–

http://pantheon.media.mit.edu/treemap/country_exports/US/all/1950/2010/H15/pantheon

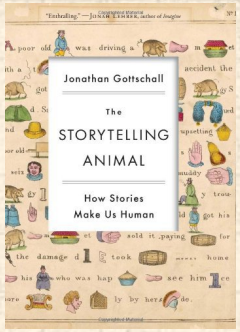


https://www.media.mit.edu/projects/pantheon-new/overview/

It’s all about algorithms (stories):

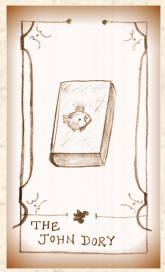


“On the Origin of Stories: Evolution, Cognition, and Fiction”
by Brian Boyd (2010). [4]

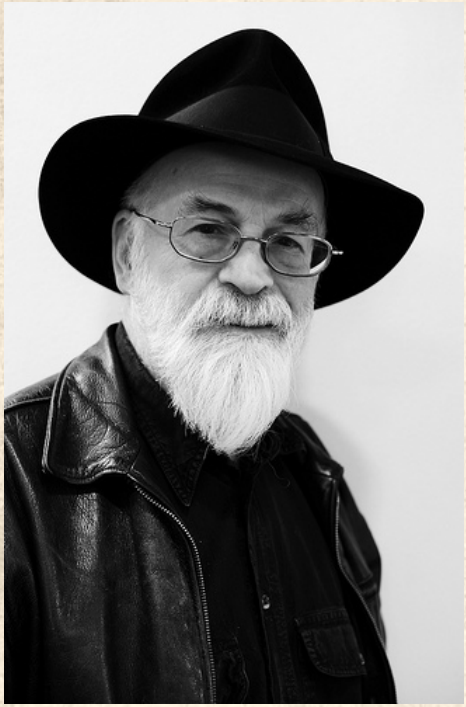


“The Storytelling Animal: How Stories Make Us Human”
by Jonathan Gottschall (2013). [11]

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



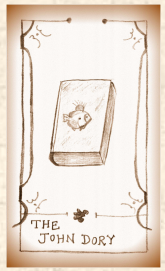
(Sir Terry) Pratchett's Narrativium:



- "The most common element on the disc, although not included in the list of the standard five: earth, fire, air, water and surprise. It ensures that everything runs properly as a story."
- "A little narrativium goes a long way: the simpler the story, the better you understand it. Storytelling is the opposite of reductionism: 26 letters and some rules of grammar are no story at all."

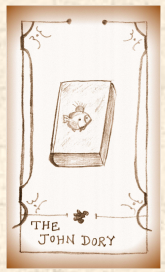
- "Heroes only win when outnumbered, and things which have a one-in-a-million chance of succeeding often do so."

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



We see (certain kinds of) stories:

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

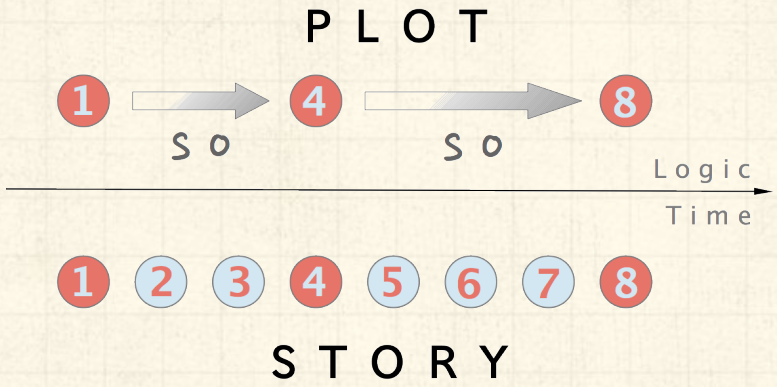


http://www.youtube.com/watch?v=VTNmLt7QX8E?rel=0

Heider and Simmel, 1944 [12]

Simple Definitions:

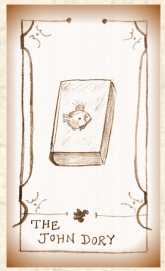
- Story: a laying out of a temporal sequence of events.
- "Time is a great storyteller" (Irish proverb)
- Events may be any balance of real and imagined.
- Narrative ≡ Story.
- Plot: Essential sequence of a story's elements.[1]



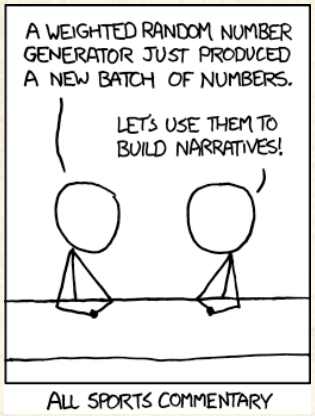
- Plot = Algorithm

[1] By まとりょ🄵しか — Own work, CC BY-SA 4.0,

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



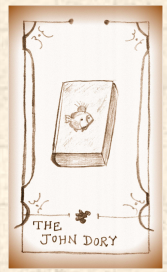
Understanding the Sociotechnocene—Stories:



xkcd.com/904/

- Goal: a Science of Stories.
- Claim: Homo narrativus—we run on stories.
- "What's the John Dory?"
- "They've lost the plot/thread"
- Maybe: The narrative hierarchy and the Scalability of stories.
- Research: Extraction of metaphors, frames, narratives, and stories from large-scale text/corpora.
- Storywrangler, POTUSometer, ...
- Research: What's the taxonomy of human stories?
- Maybe: Stories ↔ Algorithms

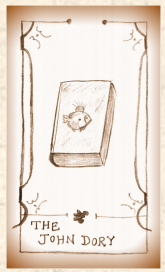
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



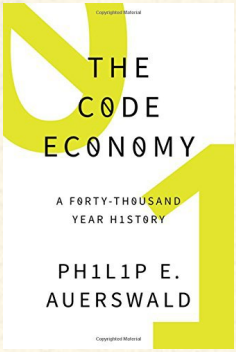
Algorithms are everywhere:

- Communication/Language.
- Economic systems
  (Shiller: "Narrative Economics" [19])
- Legal systems.
- Social norms, customs, cultures.
- Food:
  growing, harvesting, preparing, distribution, ...
- Safety codes and protocols
- Military.
- Stories ...

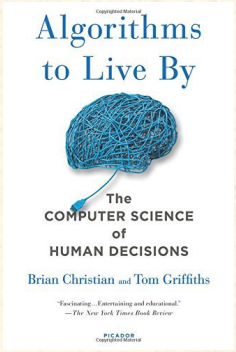
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



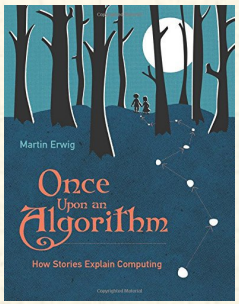
Algorithms, recipes, stories, ...



"The Code Economy: A Forty-Thousand Year History"
by Philip E Auerswald (2017). [2]



"Algorithms to Live By"
by Christian and Griffiths (2016). [8]



"Once Upon an Algorithm"
by Martin Erwig (2017). [10]

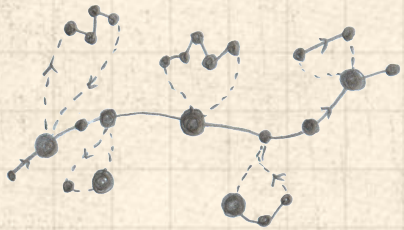
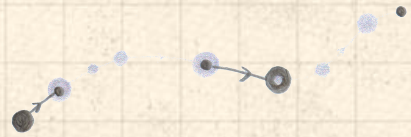
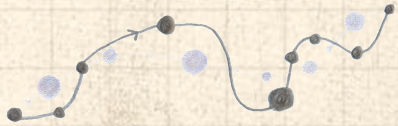
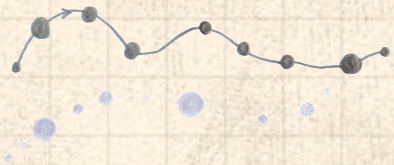
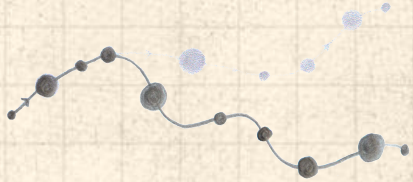
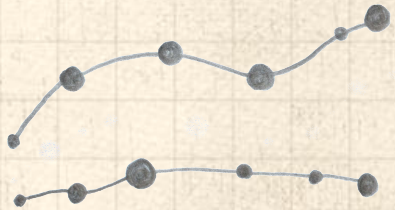
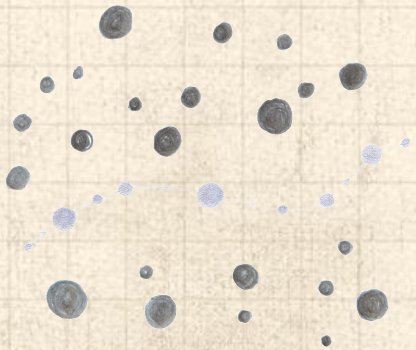
Also: Numerical Recipes in C [16] and How to Bake π [7]

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

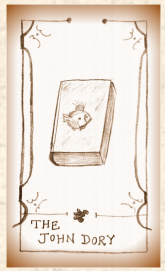
THE SUN
THE GOLDEN AGE OF REDUCTIONISM
THE MANIFESTO
THE WELL OF SCALES
THE LAWS OF DECAYING POWER
THE UNEXPECTED TRANSFIGURATION
MINISTRY OF RANDOM WALKS
THE RICH GET RICHER
THE DREAM OF EFFICIENT LANGUAGE
THE LAW OF DIGITS FIRST
THE SURPRISE OF BEING ROBUST YET FRAGILE
THE MISREADING OF THE BOOK OF SAND
THE MANY TALES OF MANY TAILS
THE MEASURING
THE DATA POOR
THE POURING DATA
THE CHARMS OF THE MANY WRONG PATHS
THE DOORS THAT SHOULD NOT BE OPENED
THE KNOWLEDGE OF DEAD MONKS
THE EMERGENCE OF STRUCTURE
THE EMERGENCE OF DESTRUCTION
THE EMERGENCE OF THINKING
THE EMERGENCE OF STORIES
THE MECHANICS STATISTICAL
THE THRESHOLDS OF PERCOLATION
THE NETWORKS COMPLEX
THE ELEMENTS OF WEBS
THE BIRDS OF A FEATHER
THE BIRDS OF NOT A FEATHER
THE ARK OF THE RANDOM NETWORK
THE STRANGENESS OF FRIENDS
THE SMALLNESS OF WORLDS
THE THEORY OF SIX DEGREES
THE NETWORKS FREE OF SCALE
THE CONTAGION
THE CONFUSION OF CONTAGIONS
THE DISEASE OF RANDOM MIXING
THE UNENDING PANDEMICS
THE THRESHOLDS OF THE MIND
THE SOCIAL WILD
THE SOCIAL CONTAGION
THE RATIO OF GAIN
THE MECHANICS OF FAME
THE TALK OF FAME
THE STORIES CONTAGIOUS
THE JOHN DORY
THE STORYTELLERS
THE FATED ASTRAL PATH
THE PATHS OF UNIVERSALITY
THE DEPENDENT PATHS
THE TROUSERS OF BIFURCATING REALITIES
THE UNKNOWN MECHANISM
THE LANDSCAPES OF FORKING PATHS
THE NETWORKS OF BLOOD
THE TREES OF REALITY
THE ORDERS OF STREAMS
THE LAWS OF BRANCHING
THE SCALING OF BROKEN HIERARCHIES
THE BRAID OR THE BRANCH
THE LAW OF OPTIMAL FORKS
THE CHURCH OF QUARTEROLOGY
THE TRUTHICIDE
THE FAMILY OF PANCAKE COWS
THE FAMILY OF SPHERICAL COWS
THE IMPROBABLE PACHYDERM
THE ILL-SCALING OF ALLOMETRIC BODIES
THE SUPPLY MOST FAIR
THE SUPPLY TO THE MOST
THE DARK ART OF GENERATING FUNCTIONS
THE RANDOM SUM OF RANDOMNESS
THE TWO-SIDED WORLDS
THE STORIES AND THE TROPES
THE TRUTH OF DIFFUSION
THE UNVEILING OF HIDDEN POWERS
THE SCRYING FOR THE SHAPES OF THINGS
THE LIMITS OF ORGANIZATIONS
THE OVERCOMING OF CATASTROPHE
THE TROUBLES ILL-FORMED
THE NETWORKS OF MANY ILKS
THE CHAOS OF FETTERED CONTAGION
THE END

THE ADJACENT NARRATIVES

Adjacent narratives—why mistruths and conspiracy theories exist and flourish:

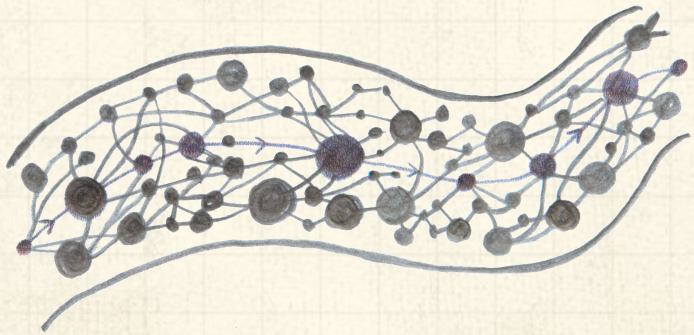
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



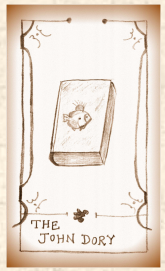
Why adjacent narratives exist and untrue stories flourish:

1/4. A real story is never recorded and retold completely

- Impossible to record every detail.
- Recording entails compression to scale of medium (narrative hierarchy).
- Story logic will be favored, and seemingly irrelevant aspects discarded.



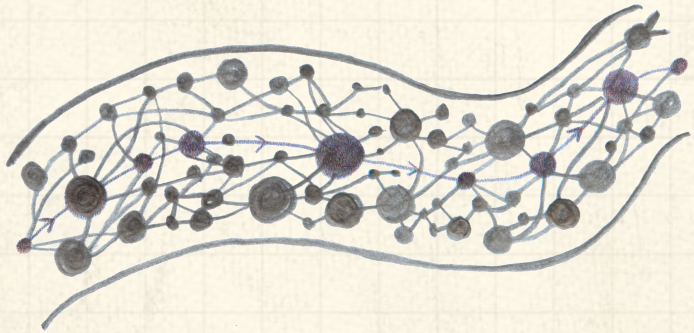
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



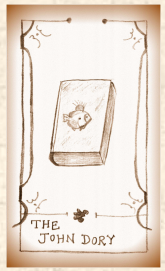
Why adjacent narratives exist and untrue stories flourish:

2/4. The infinitude of adjacent stories will afford "better" stories

- Better = More engaging, more motivating to spread, more durable under spreading.
- Better stories exist for truthful recorders and retellers (journalists).



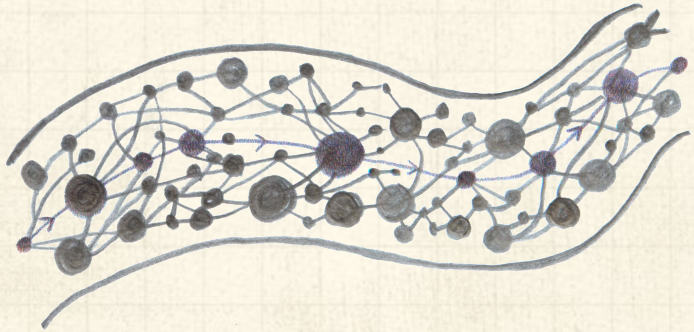
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



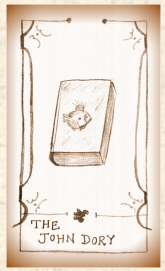
Why adjacent narratives exist and untrue stories flourish:

3/4. The infinitude of adjacent stories means “better” stories exist for those who would disinform

- Adjacent stories may be truth-limited and/or falsehood-bearing.
- There may exist adjacent stories that conform to a world view/ideology.
- Even the seemingly non-adjacent must have some plausibility (Pizzagate).



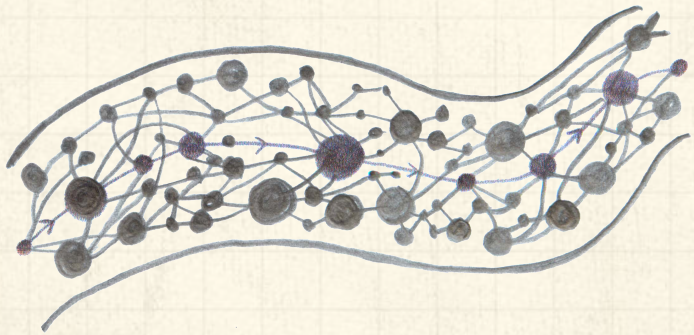
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



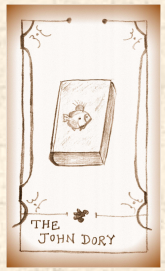
Why adjacent narratives exist and untrue stories flourish:

4/4. Character is the short cut to story

- The barely implausible can be believed if the character can make it so.
- A believe-to-be evil character can do anything.
- Iterate between character and story to make the character fixed.



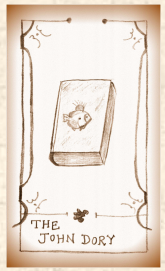
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



1999 Gallup poll:

- 6% of Americans said the lunar landings were fake.
- 5% were undecided.
- Video replay (The Comments).

Buzz Aldrin has enough:

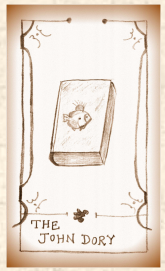


JK Rowling doesn't exist: conspiracy theories the internet can't resist, The Guardian, 2017-10-27:

Highlights:

- The Earth is flat. https://www.tfes.org.
- The Beatles never existed: http://www.thebeatlesneverexisted.com.
- Per the title, JK Rowling doesn't exist.
  - Q. "Is it possible that a person can write six thick books that are translated into 55 languages and sell more than 250 million copies in less than 10 years? — Nina Grünfeld"
  - A. "Yes. Yes it is."

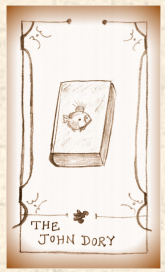
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Phantom time hypothesis:

- The years 614–911 AD never existed.
- Straight up jump of 297 years orchestrated by a first millennium cabal.
- The year 2017 AD is really 1820 AD.
- Good to know.
- Holy Roman Emperor Otto III (@TheBoss37), Pope Sylvester II (@PSly2) wanted to live in 1000 AD, legitimize power.
- Crushed by reality: Records of solar eclipses, comets, dendrochronology.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



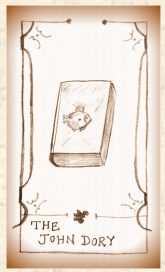
Finland does not exist:

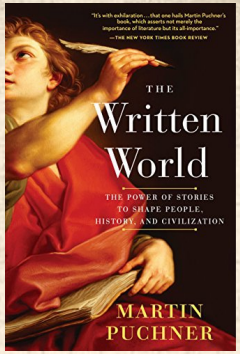
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Stories influence people, for good or bad:

- Parasocial relationships (Cosplay)
- Allusionist 82. A Novel Remedy
- Agatha Christie type murder mysteries: A salve post the Great War.
- Representation matters—possible future paths (narrative hodology)
- Columbine, references to Natural Born Killers (NBK)
- Natural Born Killers copycat crimes
- Aurora, Colorado shooting (Joker)

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References





"The Written World: How Literature Shaped Civilization"

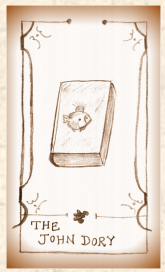
by Martin Puchner (2017). [17]

We are what we read (NYT)

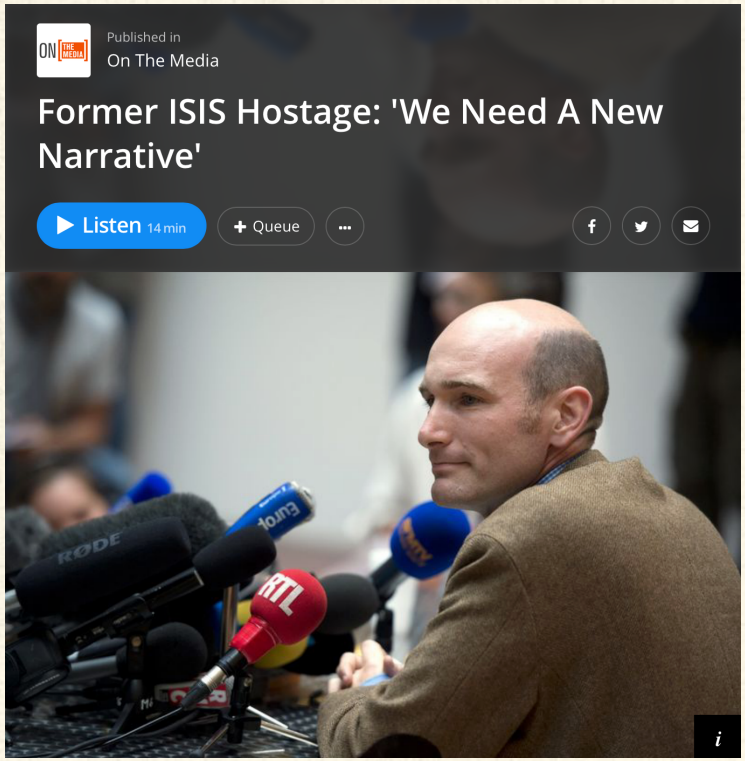
"Storytelling is as human as breathing. When fabulation intersected with writing, stories were empowered to propagate themselves in society and around the world as civilization-forming "foundational texts." "

- NYT review has a flicker of concern at the end that stories can be used for bad ...
- Common strawman frame: Stories as lightweight entertainment
- Not lighting up Google Scholar
- BBC, strawfree: How stories have shaped the world

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Story Wars:



Nicholas Hénin, French Journalist, held captive for 10 months.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

From the end of the interview:

NICOLAS HENIN: No, it was just like in a movie. And, by the way, even the people going to Syria, joining ISIS in Syria to fight, even these people see himself as movie characters. They play their own movie. This is why I think that the most powerful way to fight ISIS are not bombs. It is to kill the narrative. We have to write another movie. We have to build other heroes. And this is why I believe that the French are making big mistakes in the ways they, they fight ISIS.

We created, for instance, accounts on the social media named "Stop Jihadism," and this is [BLEEP], like they did not understand anything. And I did understand why we are so bad. It's just because in France we don't know how to write TV series properly.

[BROOKE LAUGHS]

Just because we have no imagination, we cannot just tell beautiful stories, create beautiful characters, beautiful heroes.

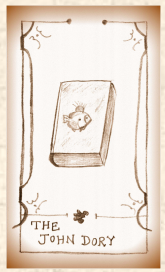
And this is what we have to do because in our world, in our societies what do people want? They want to become heroes. They want to be famous. They want to be, to be recognized.

Stories make us do all kinds of things:

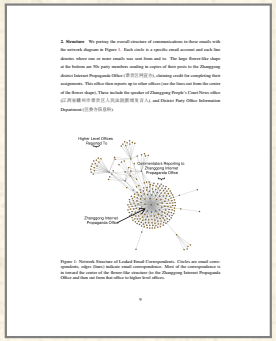
The Comet Ping Pong Gunman Answers Our Reporter's Questions:

- "According to court documents, Mr. Welch said he had come armed to help rescue the children."
- " ''The intel on this wasn't 100 percent,'' he said."
- He said he did not believe in conspiracy theories, but then added that the Sept. 11, 2001, attacks needed to be re-examined. He has listened to Alex Jones, whose radio show traffics in conspiracy theories and who once said that Mrs. Clinton ''has personally murdered and chopped up'' children. ''He's a bit eccentric,'' Mr. Welch said. ''He touches on some issues that are viable but goes off the deep end on some things.'' "

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Massive informational misdirection as a cognitive denial of story:



"How the Chinese government fabricates social media posts for strategic distraction, not engaged argument"
King, Pan, and Roberts,
American Political Science Review, , ,
Forthcoming. [15]

- Make the truth a needle in a haystack
- Trump's Reality Distortion Field, http://www.onthemedia.org
- "Surkov turned Russian politics into a bewildering constantly changing piece of theater. He sponsored all kinds of groups, ...no one was sure what was real or fake. ...it is a strategy of power that keeps any opposition constantly confused."

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Stories generated the first surveillance state:

- Low tech, low cost.
- Infrastructure maintained in the Social Wild by storytellers and storybelievers.
- Omnipresence and omniscience: The end of privacy.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Defend the Story:

The Ten Commandments:

I am the LORD thy God
No other gods before me
No graven images or likenesses
Not take the LORD's name in vain

Remember the sabbath day

Honour thy father and thy mother
Thou shalt not kill
Thou shalt not commit adultery
Thou shalt not steal
Thou shalt not bear false witness
Thou shalt not covet

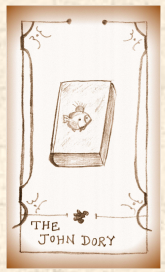
Operating systems:

Windows: "No other installations before me"

Propaganda

"If you're looking to understand what's actually happening in this country, always assume the opposite of whatever they're telling you on the big news stations," — Tucker Carlson

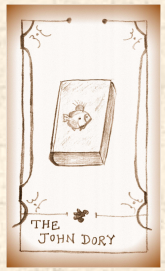
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

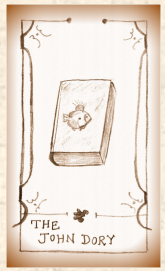
Defend your mind:

If a storyverse—whether it be through storytellers, groups, books, movies–tells you that all other stories are wrong, then that storyverse is false.



Book (story) burning (451 °F)

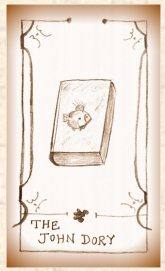
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



The American Dream = Rags to Riches

- The story that anyone can become King or Queen.
- Story of individual, not the collective.
- But we know about fame and success:
  The presence of outsized fame in a social system means social imitation is a driver of value.
- Stories of societies can only hold if they have been and remain believable.
- "Entertaining beliefs in economic mobility": Effort to understand if rags to riches stories in popular culture affect people's lives. [14]

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

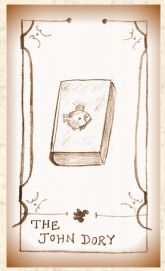


If not Trump, what?, David Brooks, New York Times, 2016-04-29:

"We'll probably need a new national story. Up until now, America's story has been some version of the rags-to-riches story, the lone individual who rises from the bottom through pluck and work. But that story isn't working for people anymore, especially for people who think the system is rigged."

"I don't know what the new national story will be, but maybe it will be less individualistic and more redemptive. Maybe it will be a story about communities that heal those who suffer from addiction, broken homes, trauma, prison and loss, a story of those who triumph over the isolation, social instability and dislocation so common today."

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

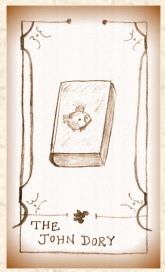


Claim: Stories must have "real" substance to endure over generations[2]

- Enormous disasters: Fabrications of real experiences.
  - Plain old making stuff up: A million little pieces … Oprah will get you.
  - Wikipedia's has a list of famous fake memoirs.
  - Expansive plagiarism: How Opal Mehta Got Kissed, Got Wild, and Got a Life. #kudos
  - Self-plagiarism and more standard badness: Jonah Lehrer. Amazingly: Made up Bob Dylan quotes.
  - Lance Armstrong. Also got to meet Oprah.
- Enormous power: Fiction that speaks to real experiences.

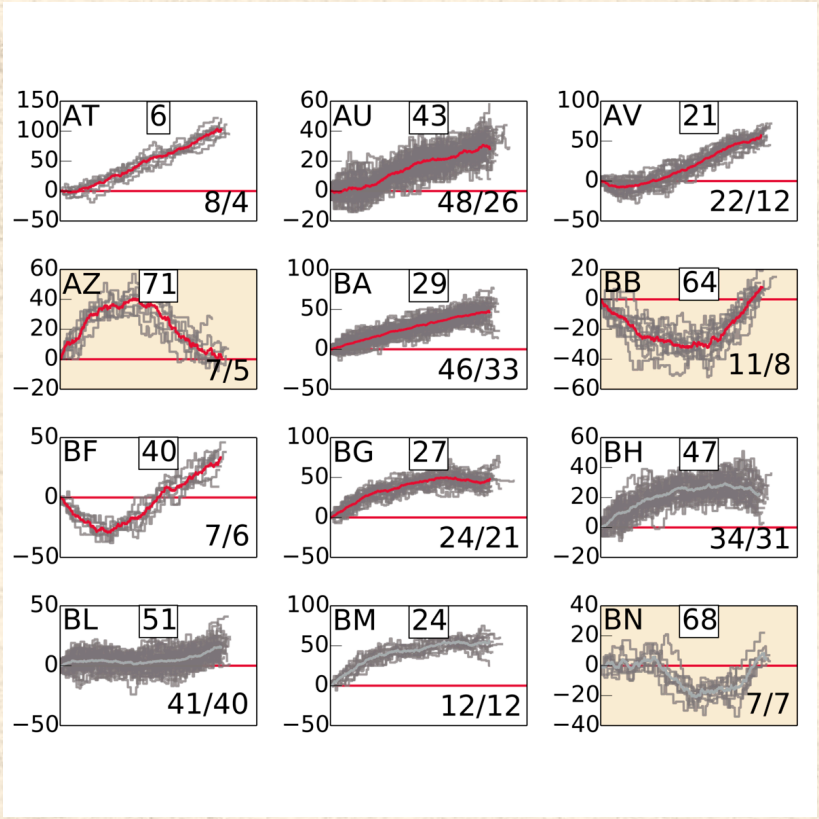
[2] Reality is being tested harshly

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



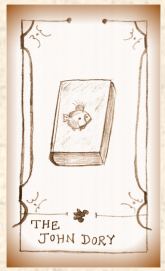
“The game story space of professional sports: Australian Rules Football”

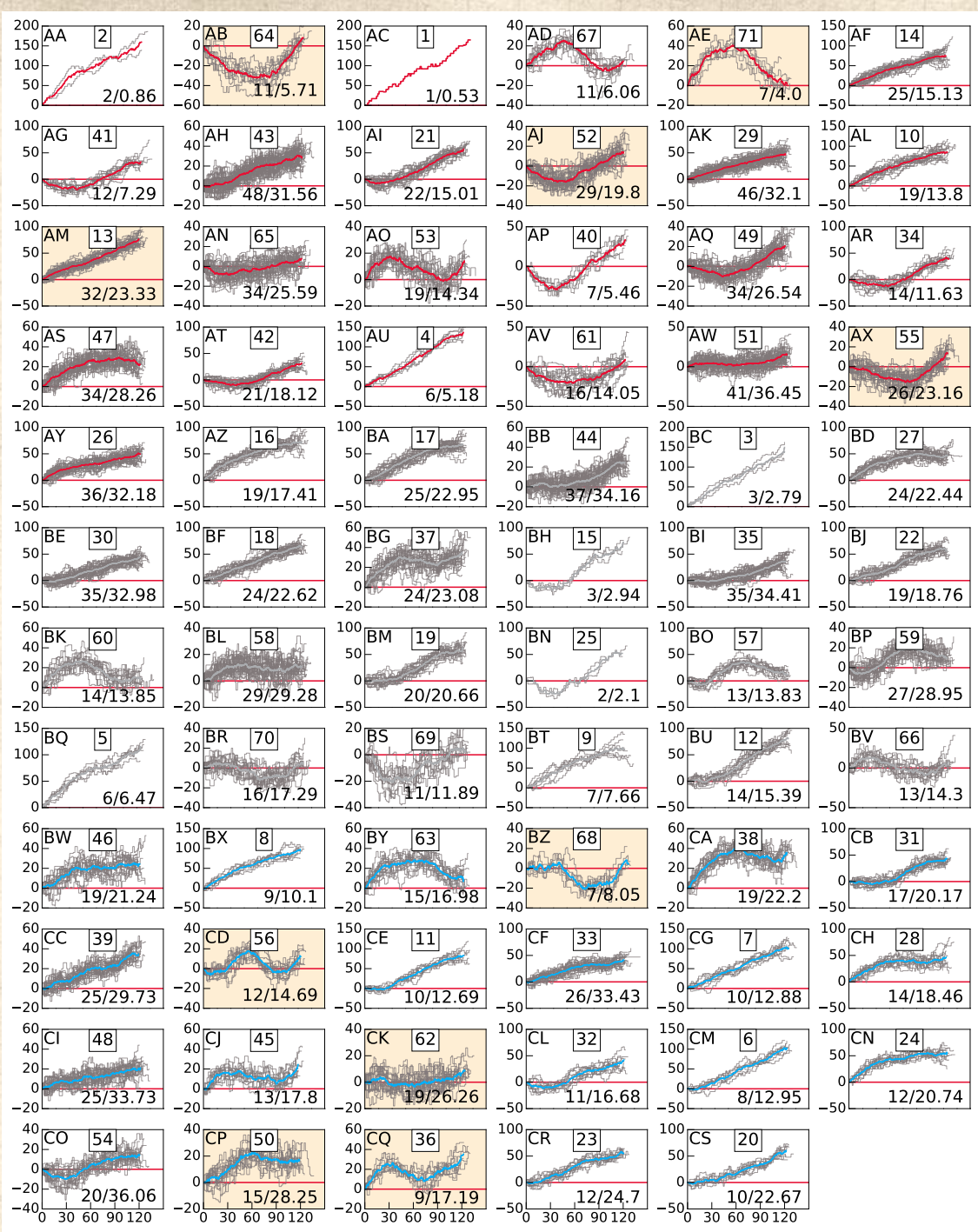
Kiley, Reagan, Mitchell, Danforth, and Dodds.
Physical Review E, **93**, 052314, 2016. [13]



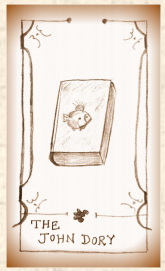
Sports = Spontaneous story producing systems

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References





Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



The story trap by Philip Ball, 2015-11-12

- “We use neat stories to explain everything from sports matches to symphonies. Is it time to leave the nursery of the mind?”
- “...we might wonder if the ultimate intelligibility of the universe will be determined not so much by the capacity of our minds to formulate the appropriate concepts and equations, but by whether we can find a meaningful story to tell about it.”

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Competitive Punning, The Economist, 2017-08-12:

The quip and the dread

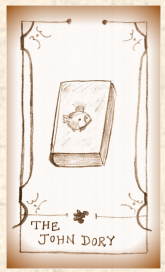
Why English is such a great language for puns

Gamers now even take part in world champunships

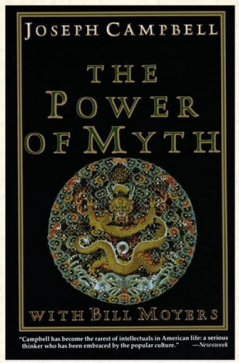
- Punster pseudonym: "Punder Enlightening"

Being funny, a grand challenge for AI:

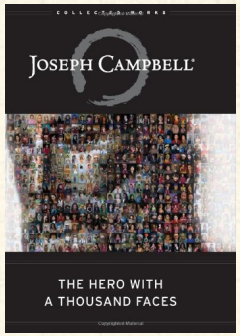
- Wired (2014-04-01): It's Comedian vs. Computer in a Battle for Humor Supremacy. Myq Kaplan pun-off.
- Pun-free paper title: "Generating Novel Puns and Plays of Word with Machine Learning"
- "Warning: This paper may cause the reader to groan to death."



The "I wonder who wrote this?" Great Man Theory:



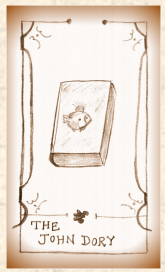
"The Power of Myth" by Campbell and Moyers (1991). [6]



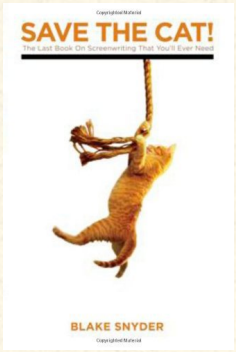
"The Hero with a Thousand Faces" by Joseph Campbell (2008). [5]

Highly influential but it's a trap!

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



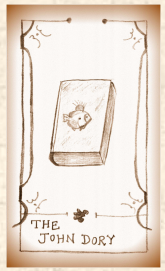
How to write a screenplay:



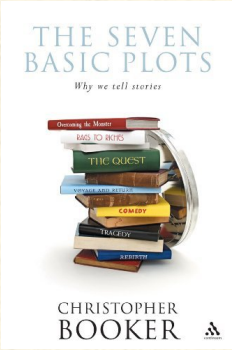
"Save the Cat!"
by Blake Snyder (2005). [20]

- 9 acts.
- Someone important to the main characters gets toasted in the second act, blah, blah.
- Believes irony is key.
- Logline = one or two sentence summary.
- Logline fails to be a summary of logline.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Seven “good” stories?:

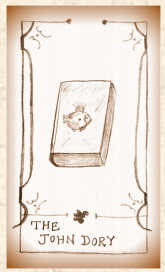


“The Seven Basic Plots: Why We Tell Stories”

by Christopher Booker (2005). [3]

- Seven Gateways to the Underworld (?)
- Overcoming the Monster $\times 2$ and the Thrilling escape from Death (plot).
- Rags to Riches (plot).
- The Quest (plot).
- Voyage and Return (plot).
- Comedy $\times 2$ (plot but really structure).
- Tragedy $\times 3$ (plot).
- Rebirth (plot).
- The Dark Power: From Shadow into Light (master structure).

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



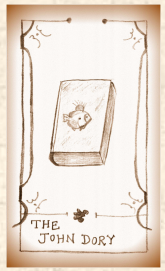
The taxonomy of stories:

- ANIMAL TALES 1-299
  - Wild Animals 1-99
    - The Clever Fox (Other Animal) 1-69
    - Other Wild Animals 70-99
  - Wild Animals and Domestic Animals 100-149
  - Wild Animals and Humans 150-199
  - Domestic Animals 200-219
  - Other Animals and Objects 220-299
- TALES OF MAGIC 300-749
  - Supernatural Adversaries 300-399
  - Supernatural or Enchanted Wife (Husband) or Other Relative 400-459
    - Wife 400-424
    - Husband 425-449
    - Brother or Sister 450-459
  - Supernatural Tasks 460-499
  - Supernatural Helpers 500-559
  - Magic Objects 560-649
  - Supernatural Power or Knowledge 650-699
  - Other Tales of the Supernatural 700-749
- RELIGIOUS TALES 750-849
  - God Rewards and Punishes 750-779
  - The Truth Comes to Light 780-799
  - Heaven 800-809
  - The Devil 810-826
  - Other Religious Tales 827-849
- REALISTIC TALES 850-999
  - The Man Marries the Princess 850-869
  - The Woman Marries the Prince 870-879
  - Proofs of FidelitY and Innocence 880-899
  - The Obstinate Wife Learns to Obey 900-909
  - Good Precepts 910-919
  - Clever Acts and Words 920-929

Folkloristics:

- Academic area formally started around 1900.
- Aarne–Thompson classification systems
- Motif-based taxonomy.
- Online classification database

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



contributed articles

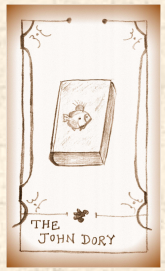
A searchable meta-graph can connect even troublesome house elves and other supernatural beings to scholarly folk categories.

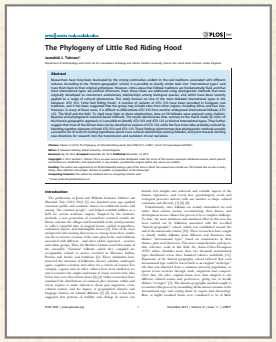
Computational Folkloristics

"Computational folkloristics"
Abello, Broadwell, and Tangherlini,
Communications of the ACM, **55**, 60–70, 2012. [1]

- Motivation: "As a simple, historical example from the Danish materials, no one has yet classified (according to the ATU index) the several thousand fairy tales in the collections of the Danish Folklore Archive (http://www.dafos.dk), nor does it seem anyone ever will."
- 'Imagine a system in which the complexities of a folklore corpus can be explored at different levels of resolution, from the broad perspective of "distant reading" down to the narrow perspective of traditional "close reading."'

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References




The Phylogeny of Little Red Riding Hood

Jamshid J. Tehrani*

"The phylogeny of Little Red Riding Hood"

Jamshid J. Tehrani,
PLoS ONE, **8**, e78871, 2013. [21]

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

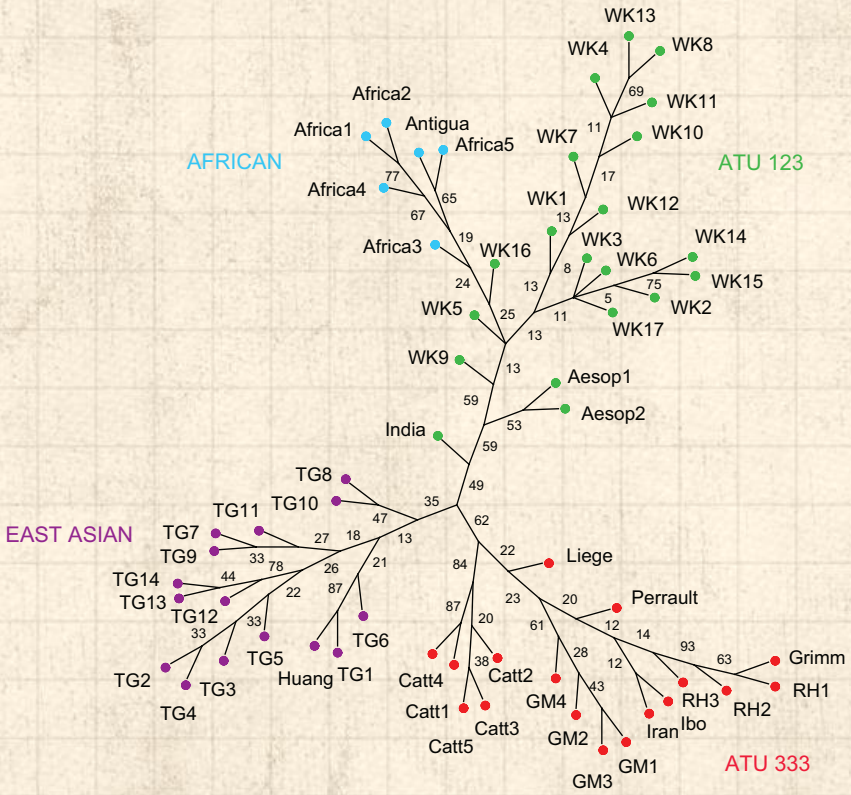
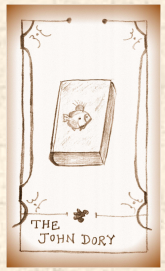


Figure 2. Majority-rules consensus of the most parsimonious trees returned by the cladistic analysis of the tales. Major groupings are labelled by region or ATU international type and indicated by the coloured nodes. Sub-types are indicated in the taxa labels (RH = Little Red Riding Hood; GM = Story of Grandmother; Catt = Catterinella; WK = The Wolf and the Kids; TG = Tiger Grandmother). Variants by particular authors, or from countries/ethnic groups that are discussed in the text have individual labels. Numbers beside the edges represent the level of support for individual clades returned by the bootstrap analysis.
doi:10.1371/journal.pone.0078871.g002



The taxonomy of stories:

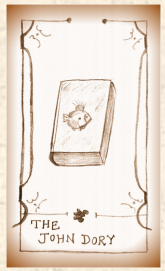
Fundamental arcs:

- Kill the Monster.
- Rags to Riches (and Riches to Rags—*Metamophosis*).
- Journey/Odyssey: Search for a salvation, a "Holy Grail".
- Romance.
- Narratives in Left Nullspace: Again, All Stories of The Many.

What about comedies?

- Comedies are not in themselves a story, but a way of telling stories.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Stories are algorithms for life:

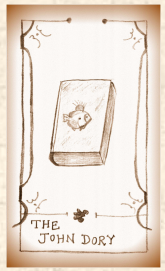
Homo narrativus:

- Provide dynamic paths and trajectories.
- If this, then that.
- Convey and reinforce how to behave, how not to behave.
- Full ecology of stories =
  Competing, self-defending operating system for people's minds.

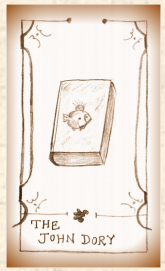
Proverbs as algorithms (hero: Wolfgang Mieder):

- "Pride cometh before the fall."
- "A stitch in time saves nine."
- "Look before you leap."
- "Anti-aphorism: The one who hesitates is lost."
- Understanding randomness: "Shit happens"

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

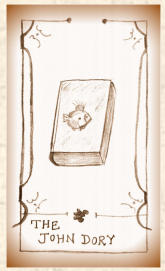


The boiled-down essence of stories:

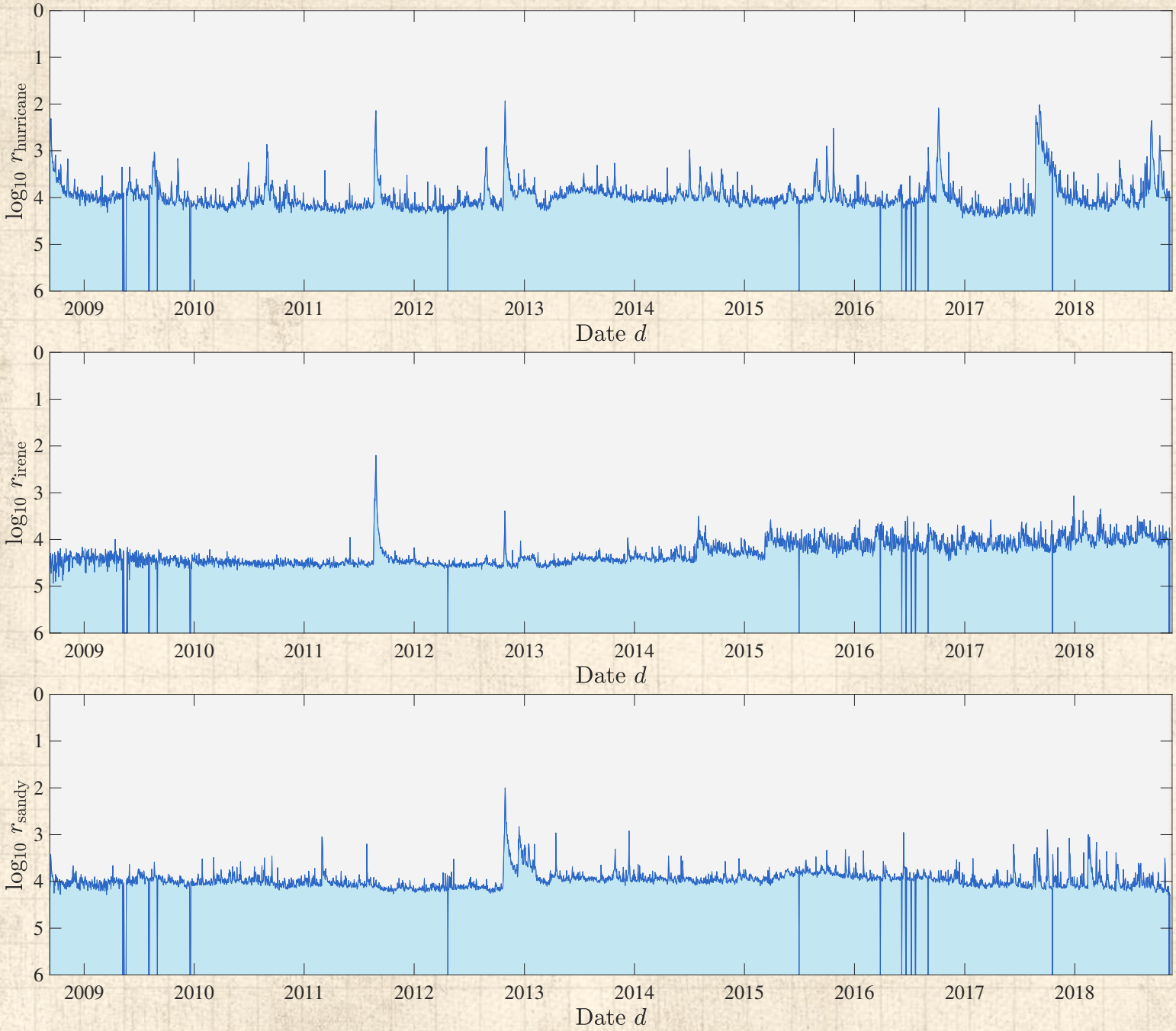
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

The three fundamental events of (non-clone) life:

- Hatchings, Matchings, and Dispatchings.
- Stories encode survival algorithms.
- Survival algorithms for individuals and groups.
- Dynamic paths: the true, the possible, the unlikely.
- The unifying theme of existence is existence.



Awareness and Memory: Hurricanes



What's the Story?

Storytellers

Stories

Power

Taxonomy

Essence

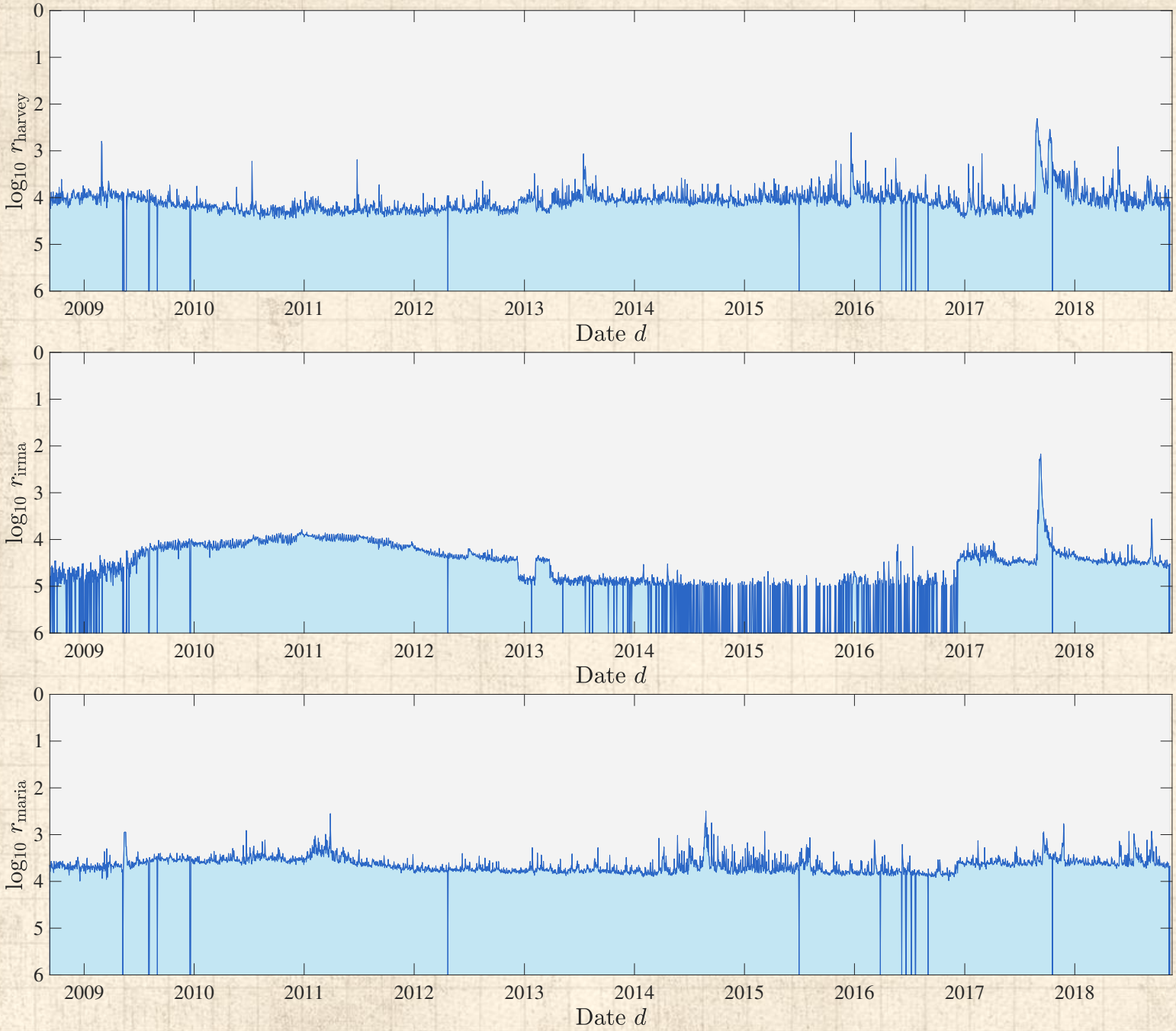
Memory & Turbulence

Emotional Arcs

Moving ahead

References

Awareness and Memory: Hurricanes



What's the Story?

Storytellers

Stories

Power

Taxonomy

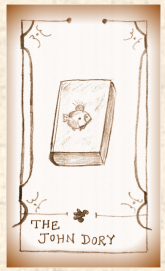
Essence

Memory & Turbulence

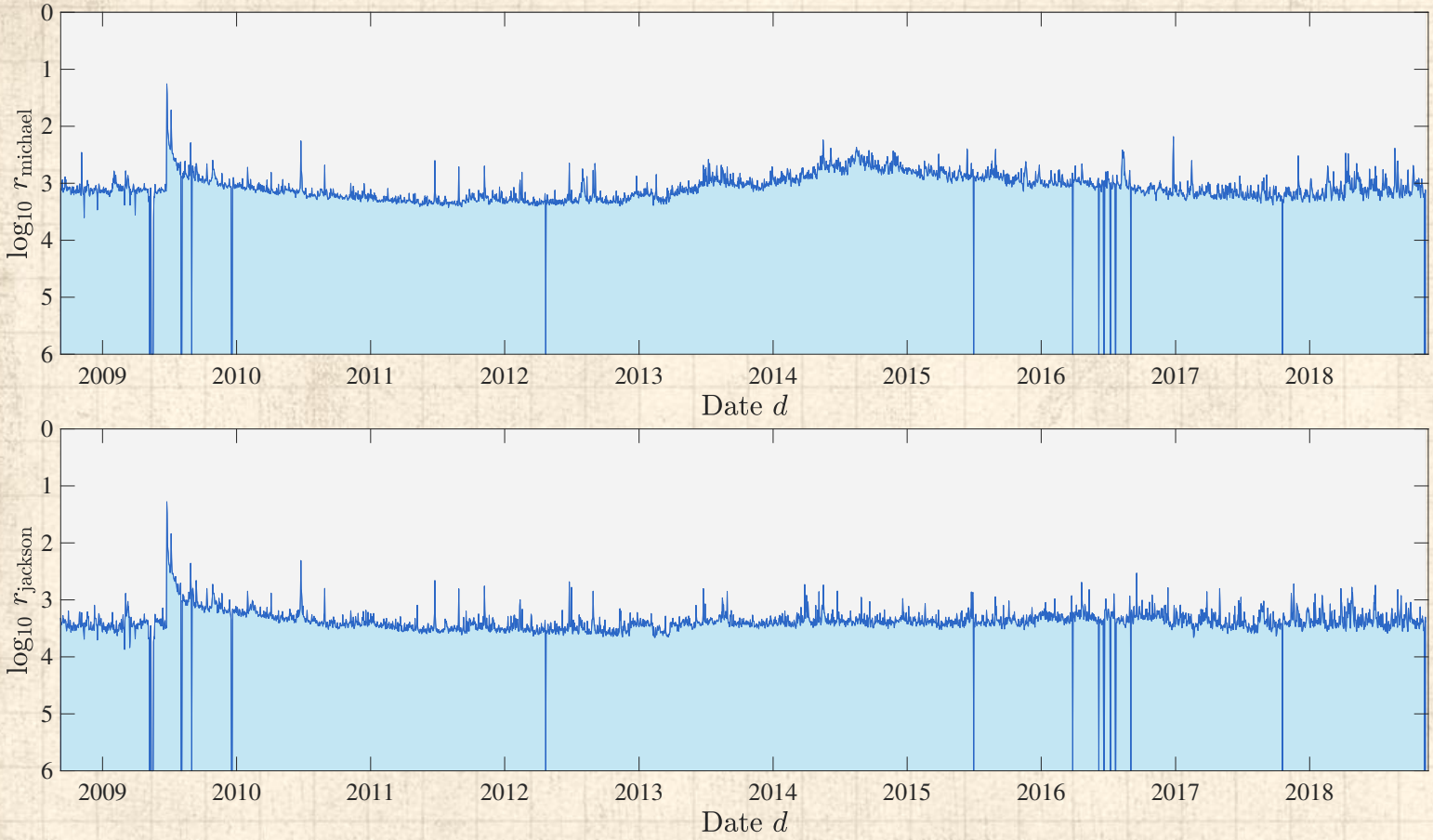
Emotional Arcs

Moving ahead

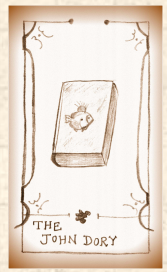
References



Michael Jackson

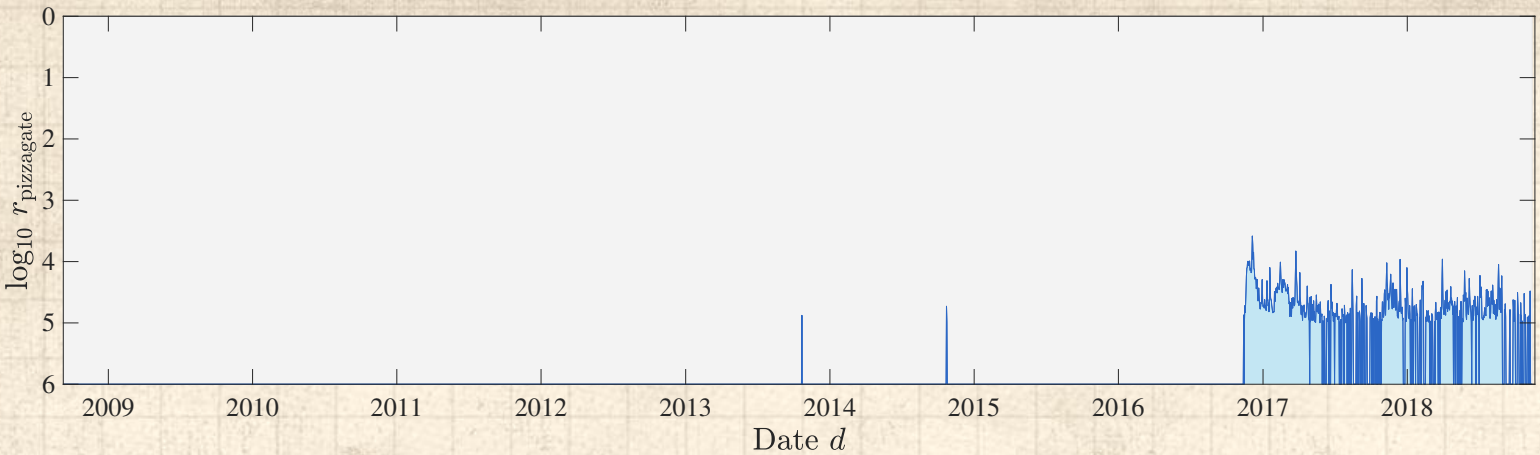


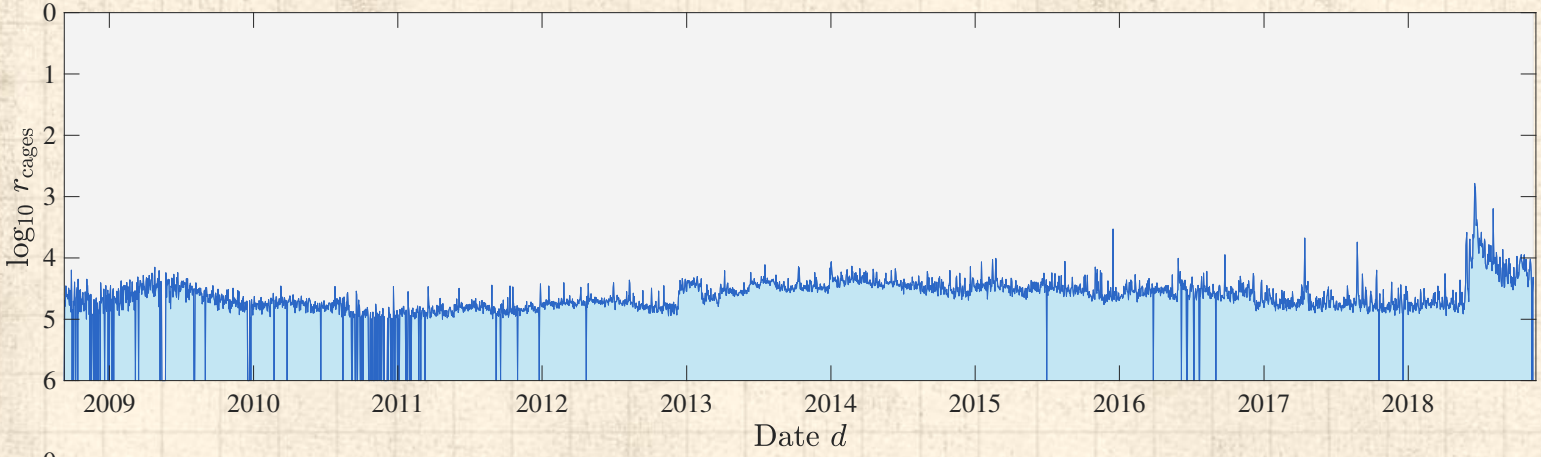
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

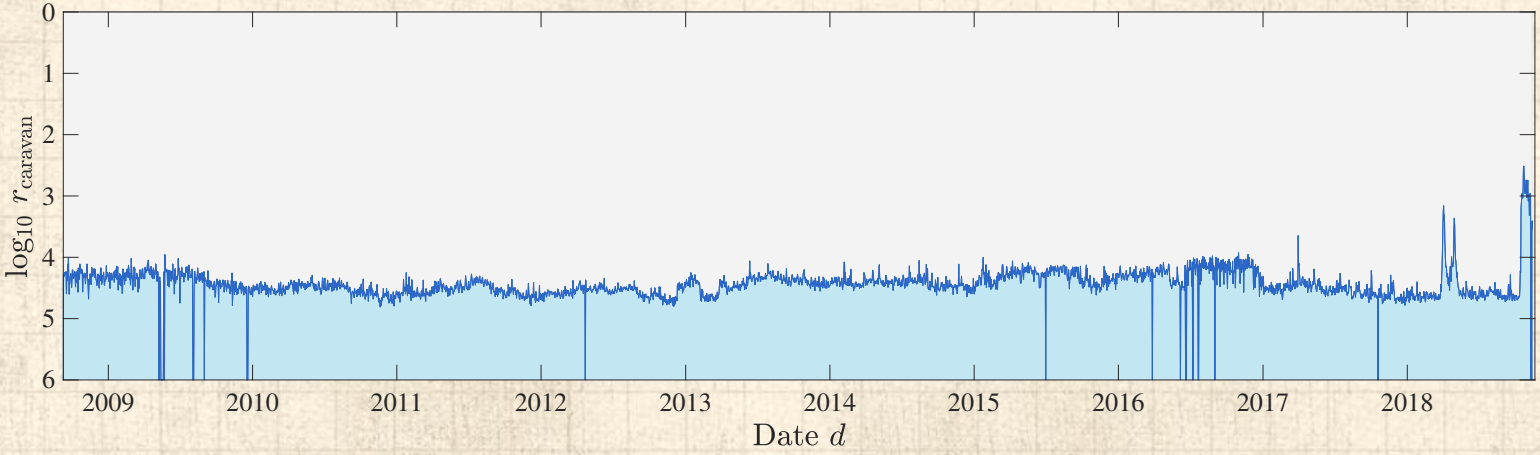


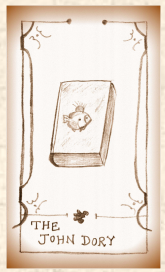
What's the Story?

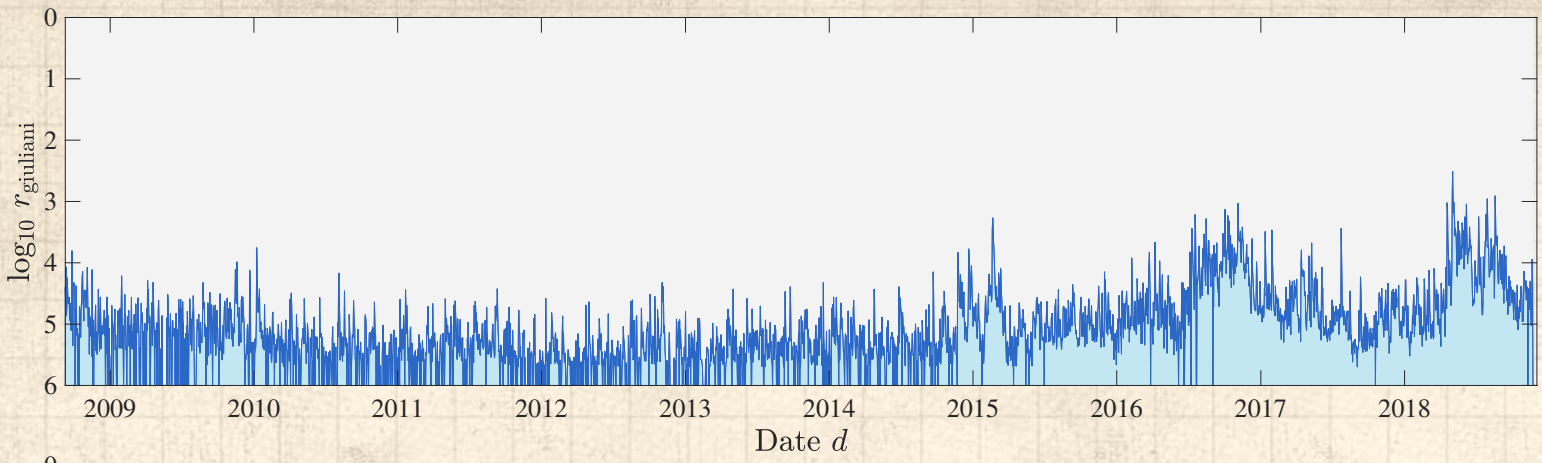
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

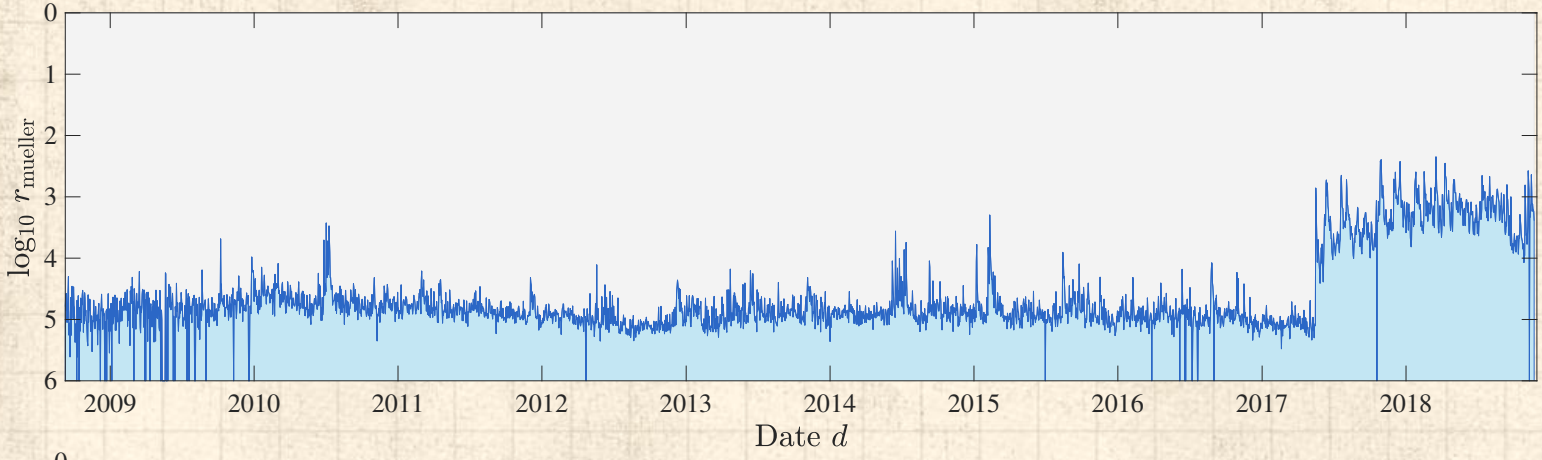


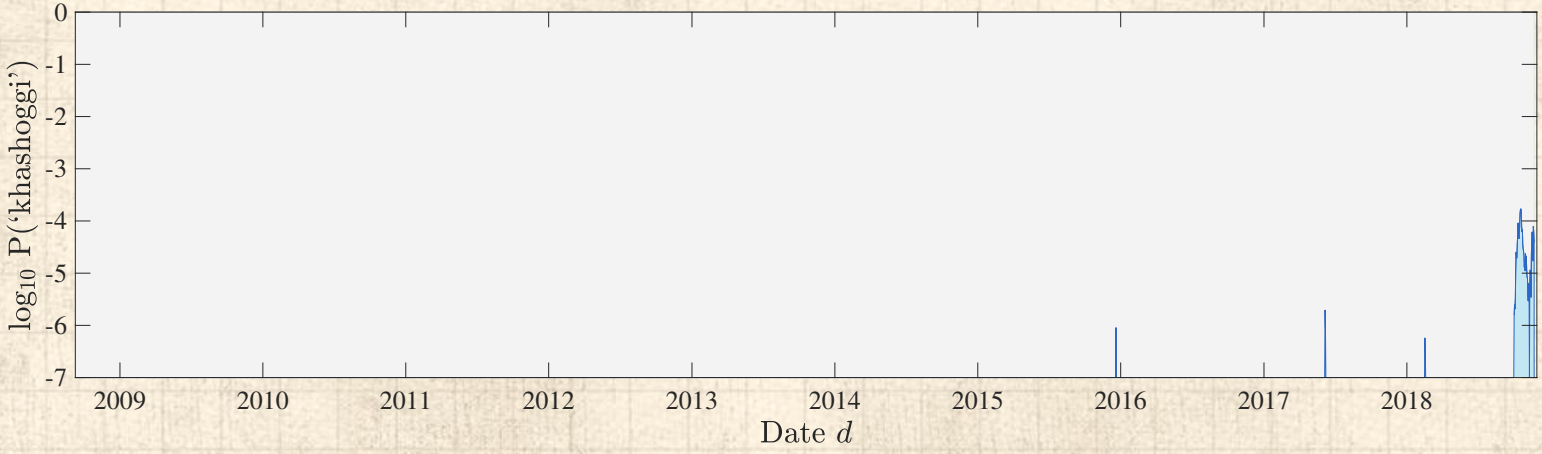












What's the Story?

Storytellers

Stories

Power

Taxonomy

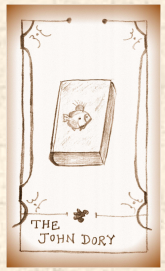
Essence

Memory & Turbulence

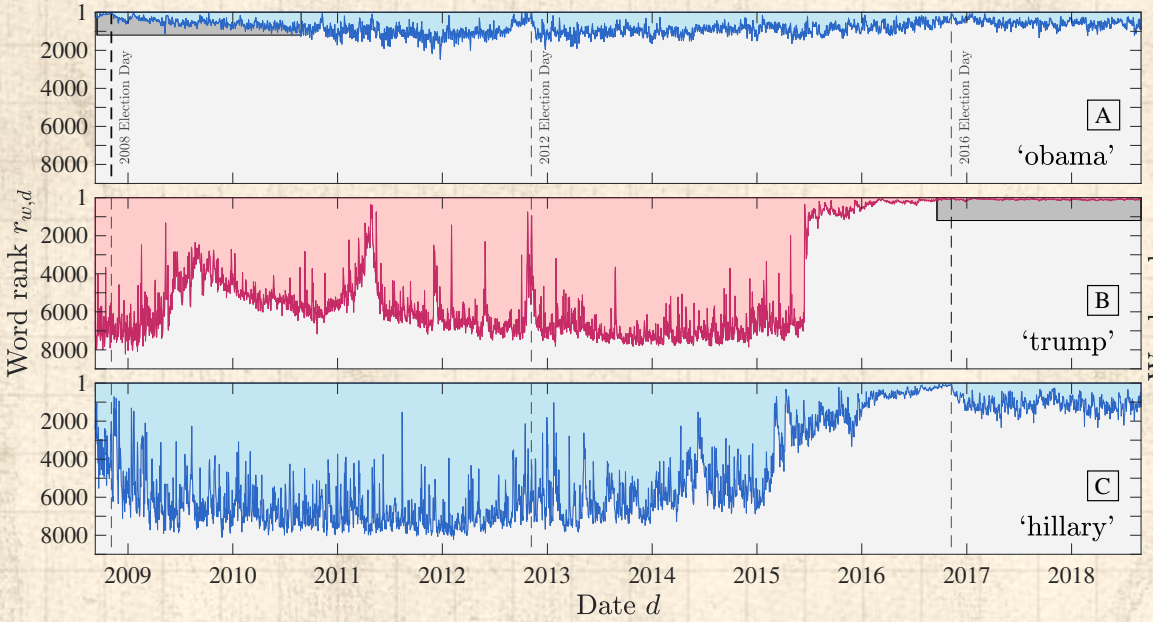
Emotional Arcs

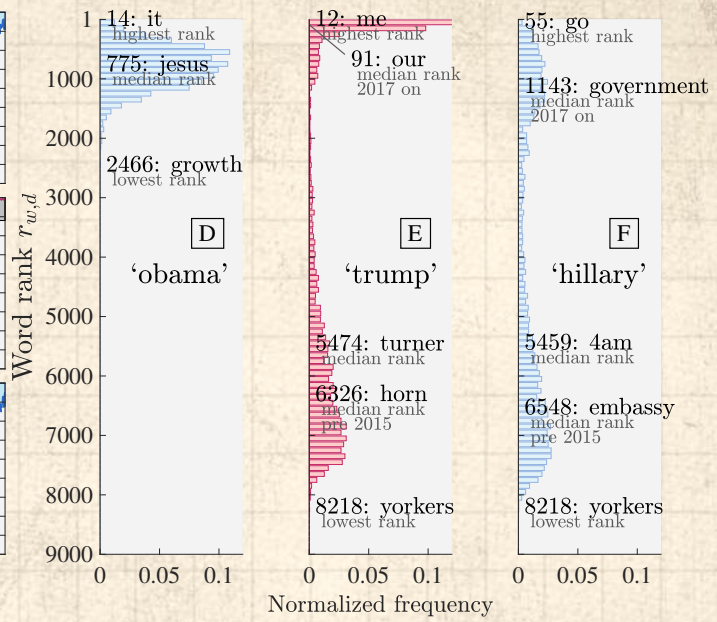
Moving ahead

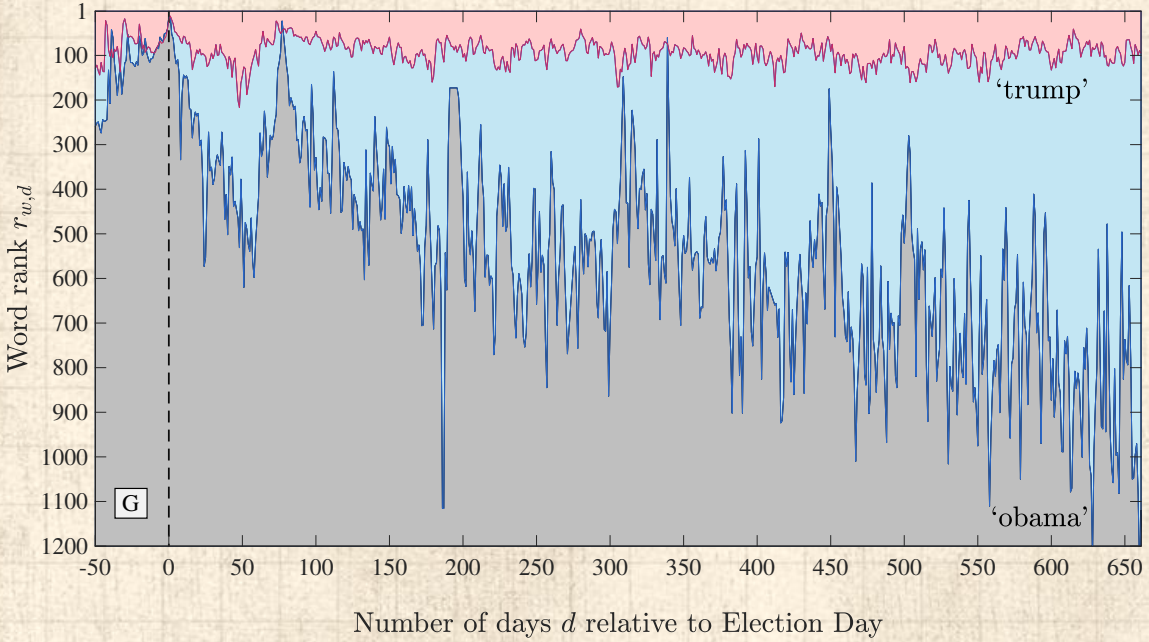
References



Lexical fame of POTUSes and possible POTUSes:

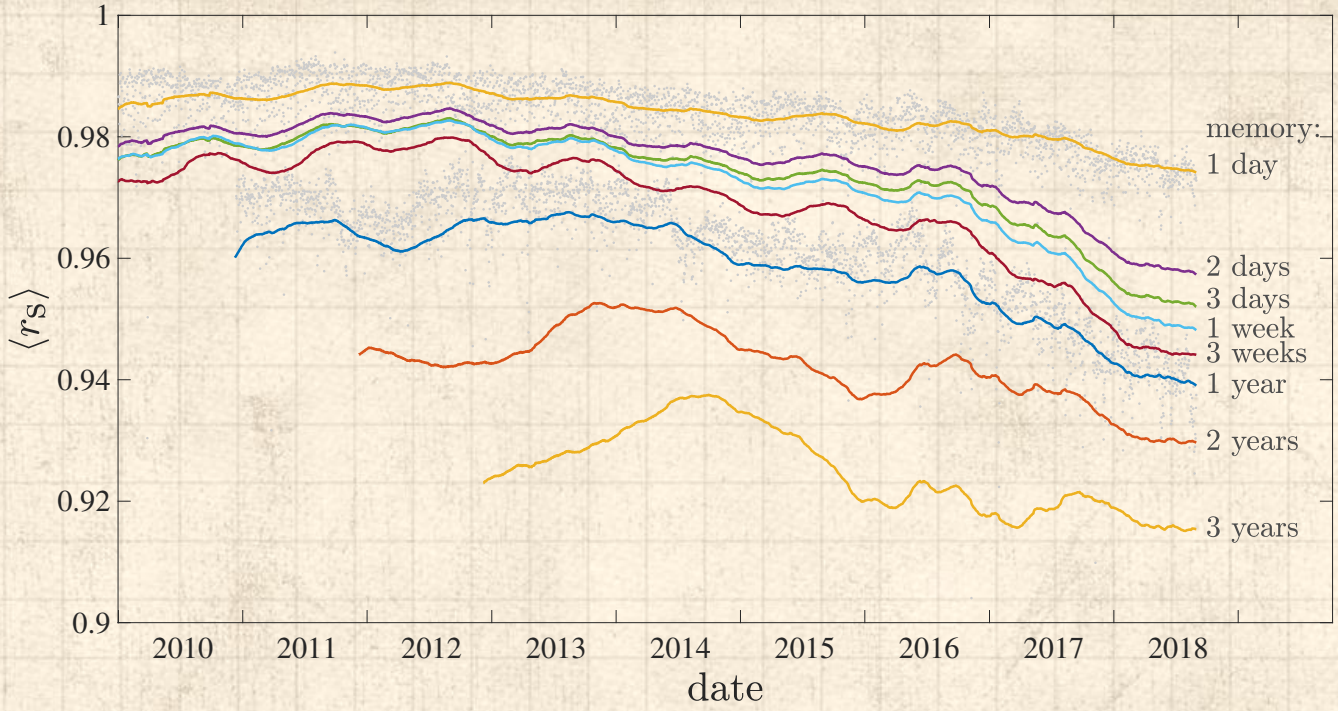


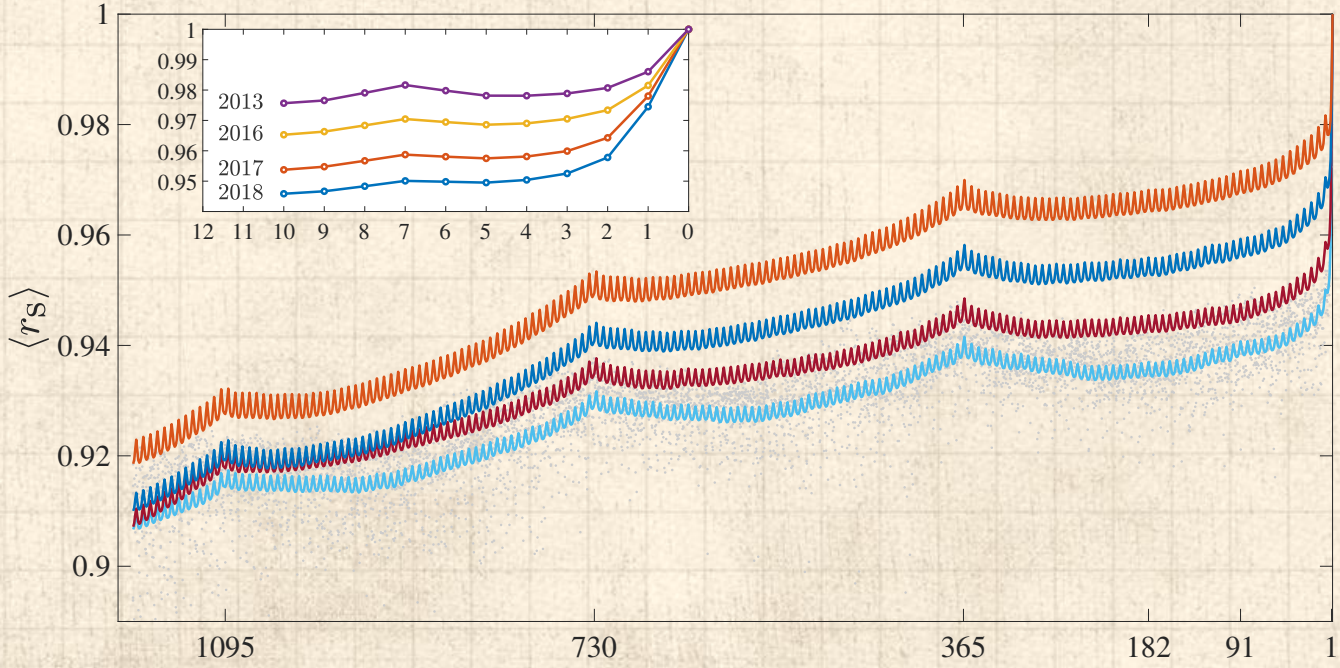




1–14: the, i, to, a, you, and, is, in, of, for, my, me, on, it
50–59: will, as, by, good, they, go, know, it's, he, who
100–109: been, its, am, off, you're, via, twitter, us, shit, had
150–155: everyone, could, where, tonight, hate, year
200–205: followers, birthday, yeah, guys, before, dont
250–255: mean, black, nothing, house, put, money
300–305: own, bed, remember, though, soon, stay
350–355: hell, sex, talking, youtube, we're, seen
400–405: place, sometimes, saw, don, gone, christmas
450–457: co, they're, join, early, lady, smile, red, book
500–507: half, young, wit, words, heard, sick, fast, send
550–555: pls, state, worth, pic, everybody, during
600–605: ill, pay, relationship, problem, president, month
650–655: case, photos, gay, account, knew, mood
700–705: click, fact, takes, knows, ones, crying
750–757: sister, st, pm, sound, inside, shot, lunch, answer
800–807: pain, dreams, lord, huge, kiss, child, movies, card
850–855: drunk, wife, killed, forgot, happens, hoe
900–905: united, lots, simple, watched, review, brown
950–956: absolutely, laughing, price, walking, sense, bar, taken
1000–1005: meant, chicken, aww, four, soo, asking
1050–1057: near, space, earth, piece, writing, kno, hurts, xxx
1100–1105: train, india, award, camera, awkward, stories
1150–1154: supposed, especially, training, broken, players
1200–1205: trending, race, dying, mobile, putting, winter

Story turbulence:





What's the Story?

Storytellers

Stories

Power

Taxonomy

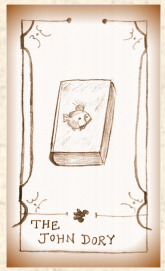
Essence

Memory & Turbulence

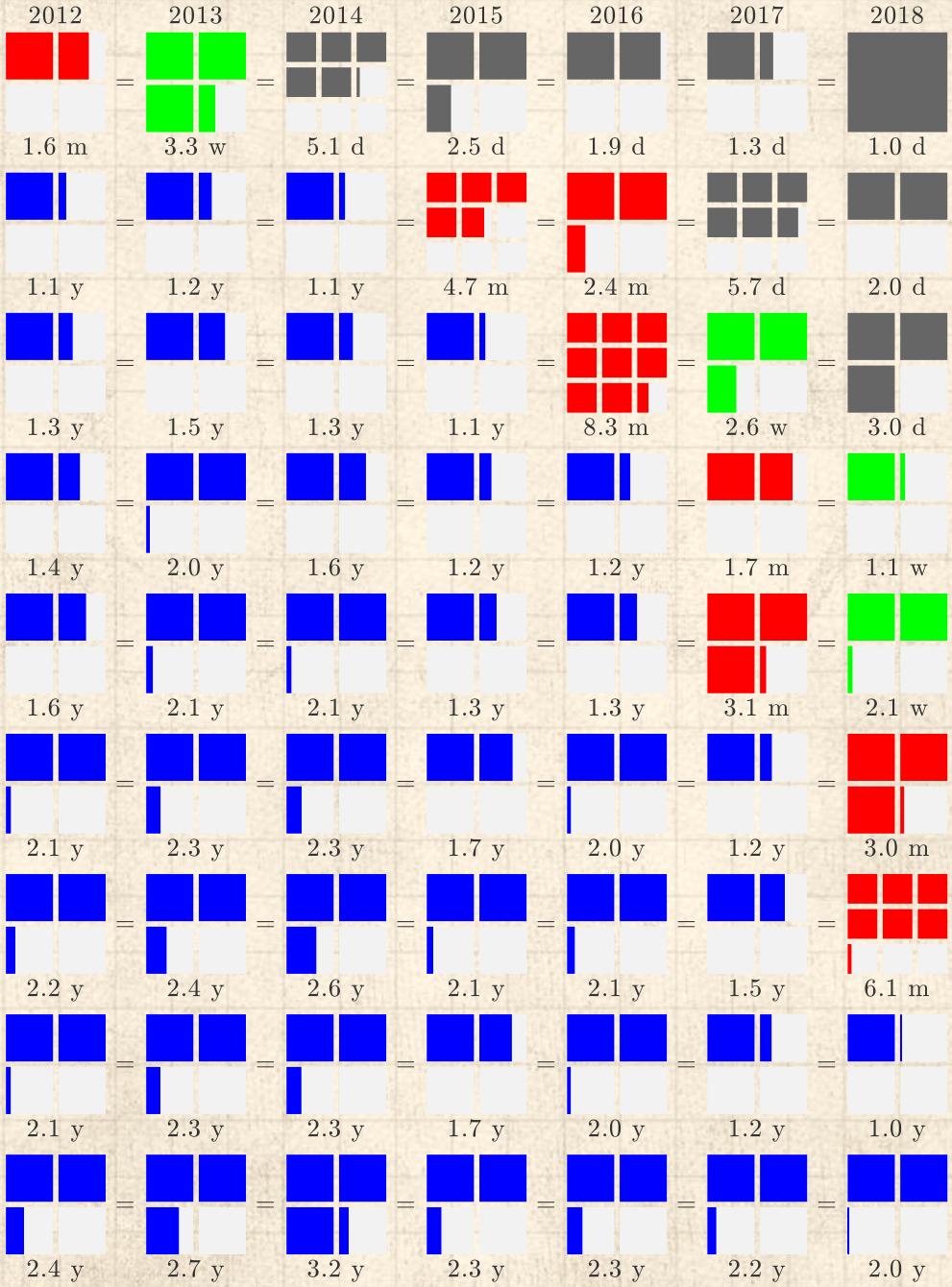
Emotional Arcs

Moving ahead

References



Story turbulence:



What's the Story?

Storytellers

Stories

Power

Taxonomy

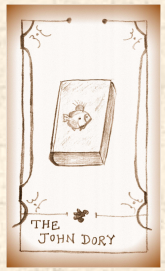
Essence

Memory & Turbulence

Emotional Arcs

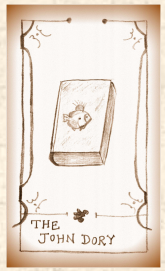
Moving ahead

References

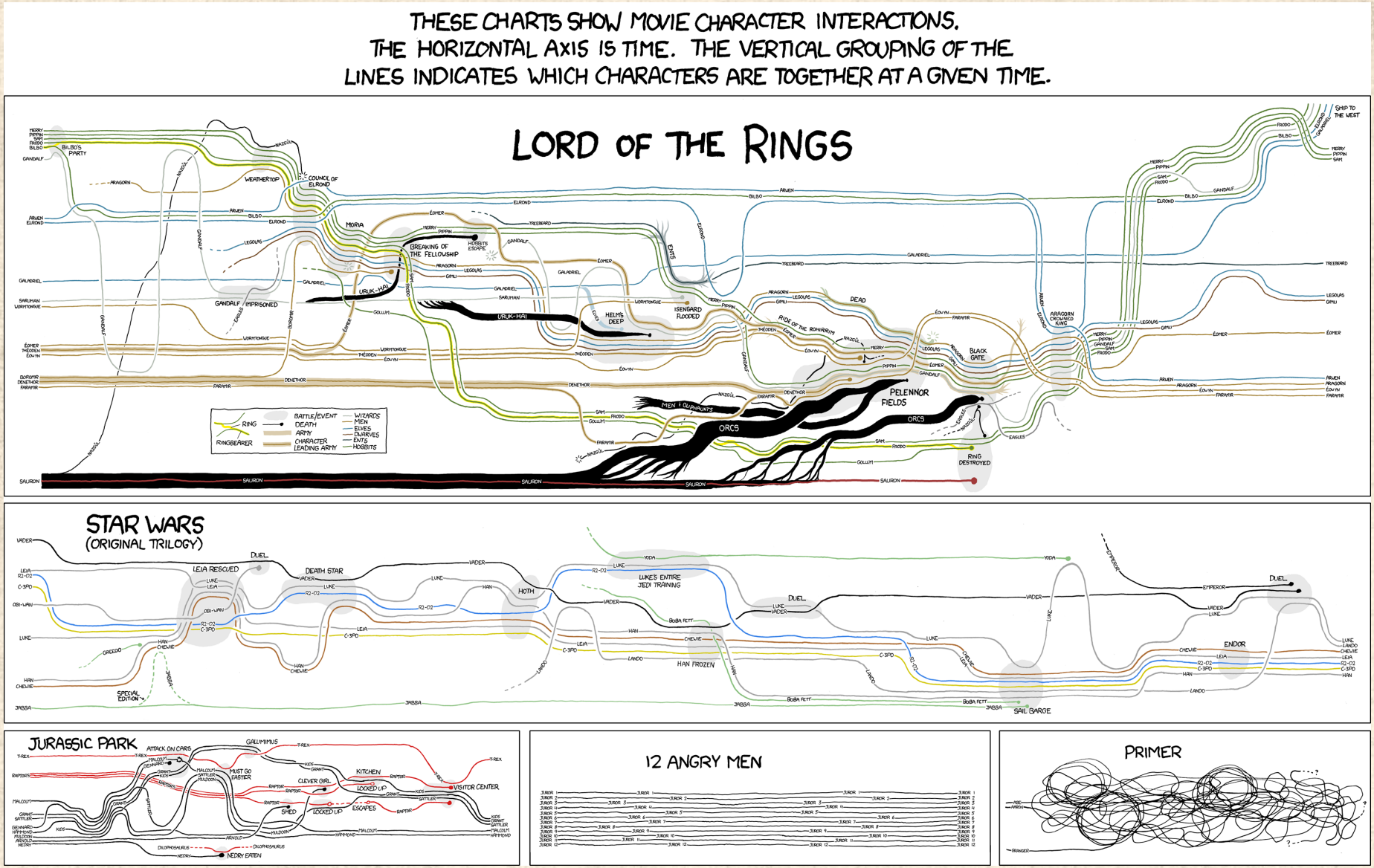


Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

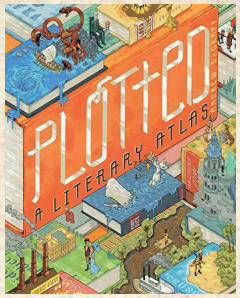
Kurt Vonnegut on the Shapes of Stories



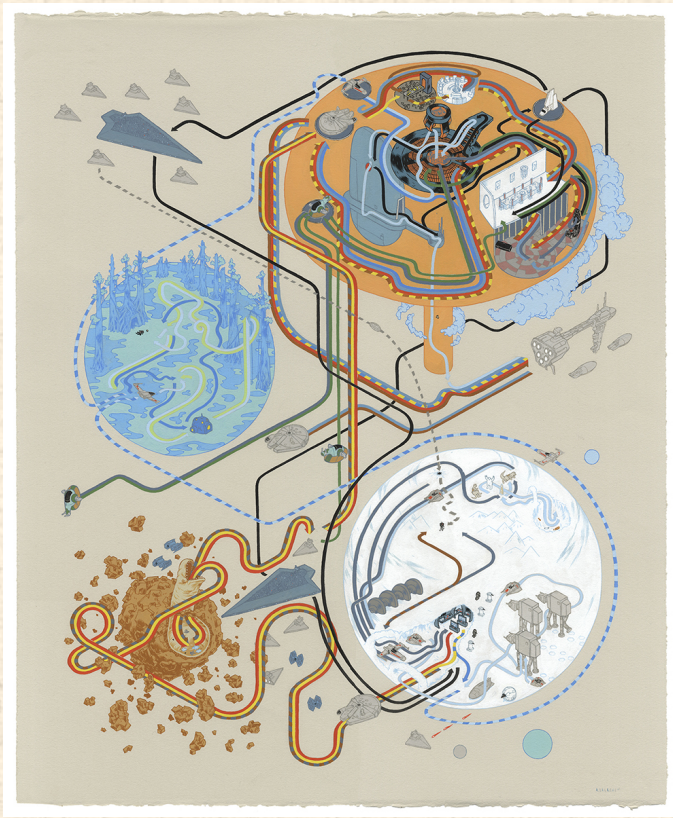
Emotional arcs are not plots. Neither are character paths:



https://xkcd.com/657/



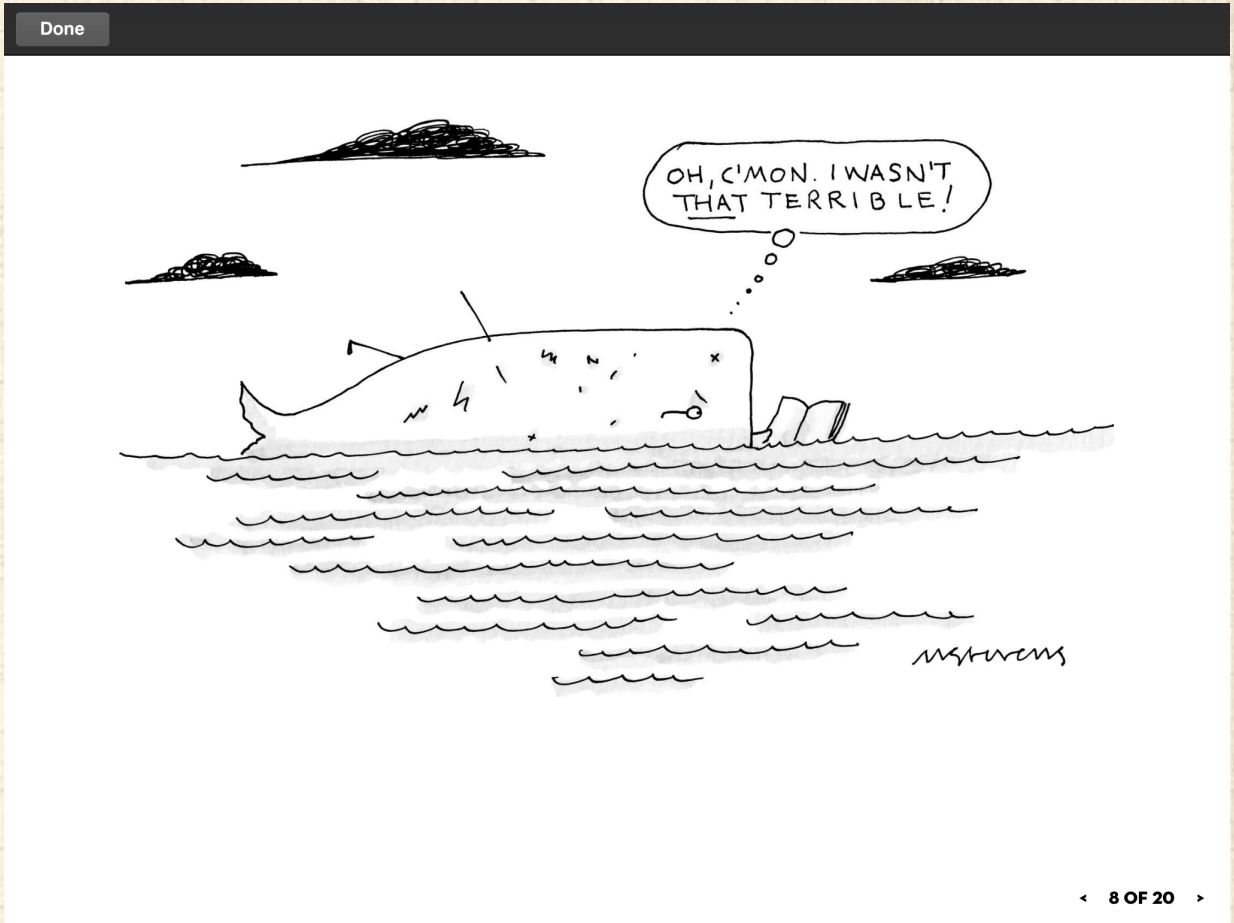
"Plotted: A Literary Atlas" by Andrew DeGraff (2015). [9]



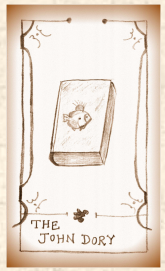
http://www.andrewdegraff.com/moviemaps/

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



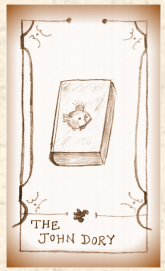
The New Yorker, December 16, 2013, p. 56.



Ron Swanson on metaphors:

- “I hate metaphors. That’s why my favorite book is Moby Dick. No frou-frou symbolism. Just a good, simple tale about a man who hates an animal.”

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



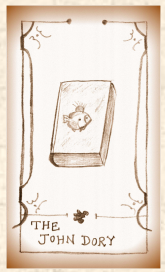
Aside: From a 2013 Believer Magazine interview with Maurice Sendak:

BLVR: Did the success of Where the Wild Things Are ever feel like an albatross?

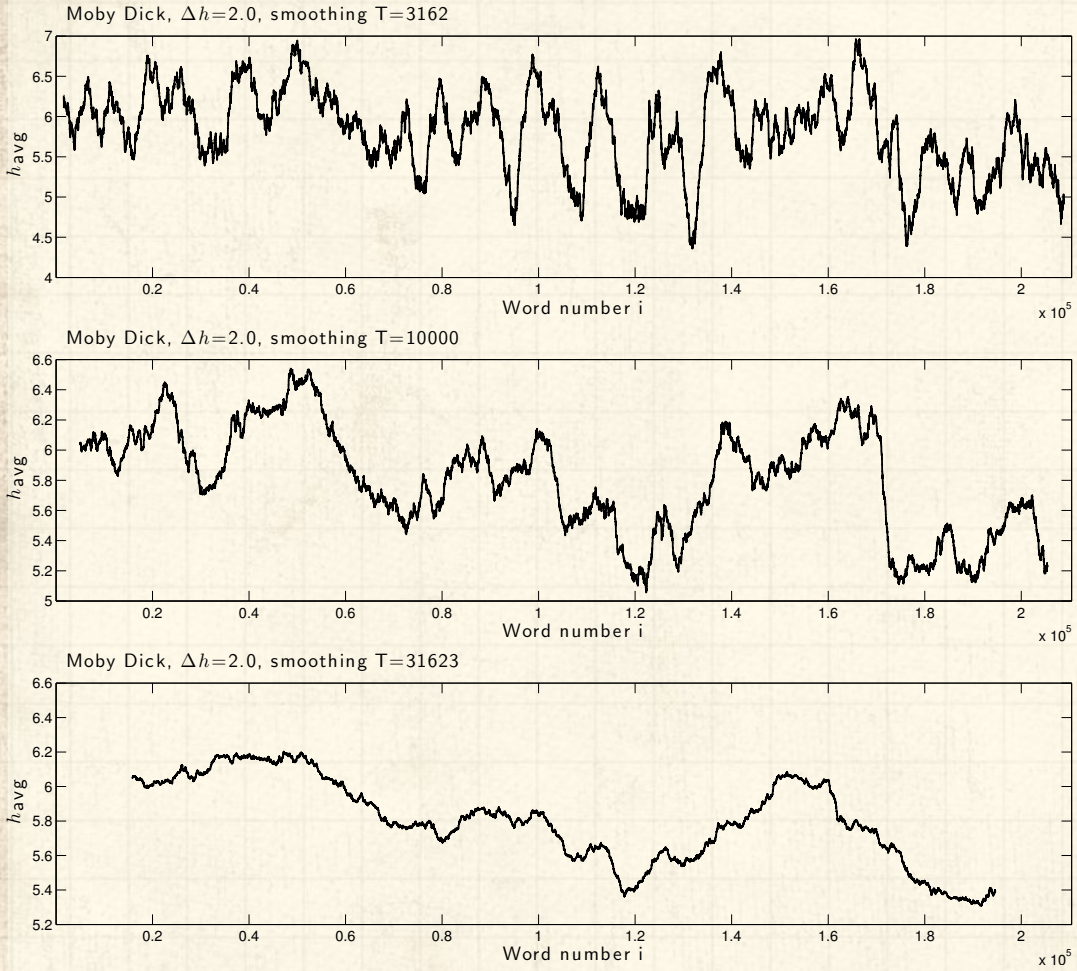
MS: It's a nice book. It's perfectly nice. I can't complain about it. I remember Herman Melville said, "When I die no one is going to mention Moby-Dick. They're all going to talk about my first book, about forking maidens in Tahiti." He was right. No mention of Moby-Dick then. Everyone wanted another Tahitian book, a beach book. But then he kept writing deeper and deeper and then came Moby-Dick and people hated it. The only ones who liked it were Mr. and Mrs. Nathaniel Hawthorne. Moby-Dick didn't get famous until 1930.

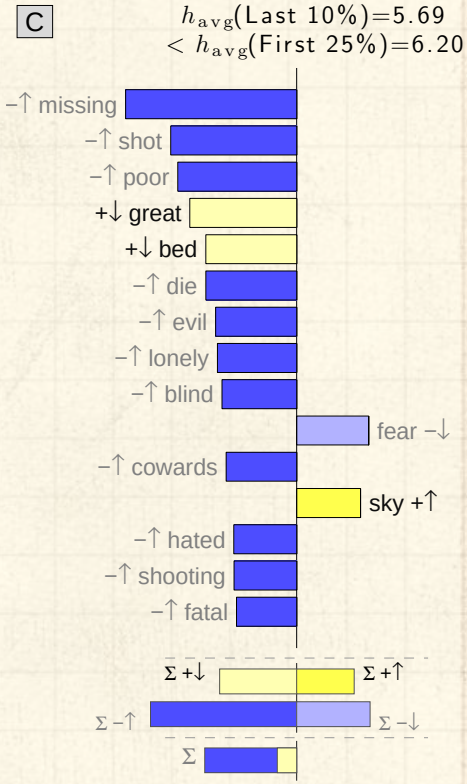
- Sendak named his dog Herman.
- The essential (true) Colbert interview: Pt. 1 and Pt. 2.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

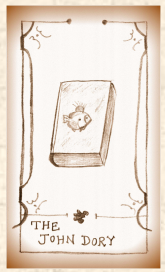


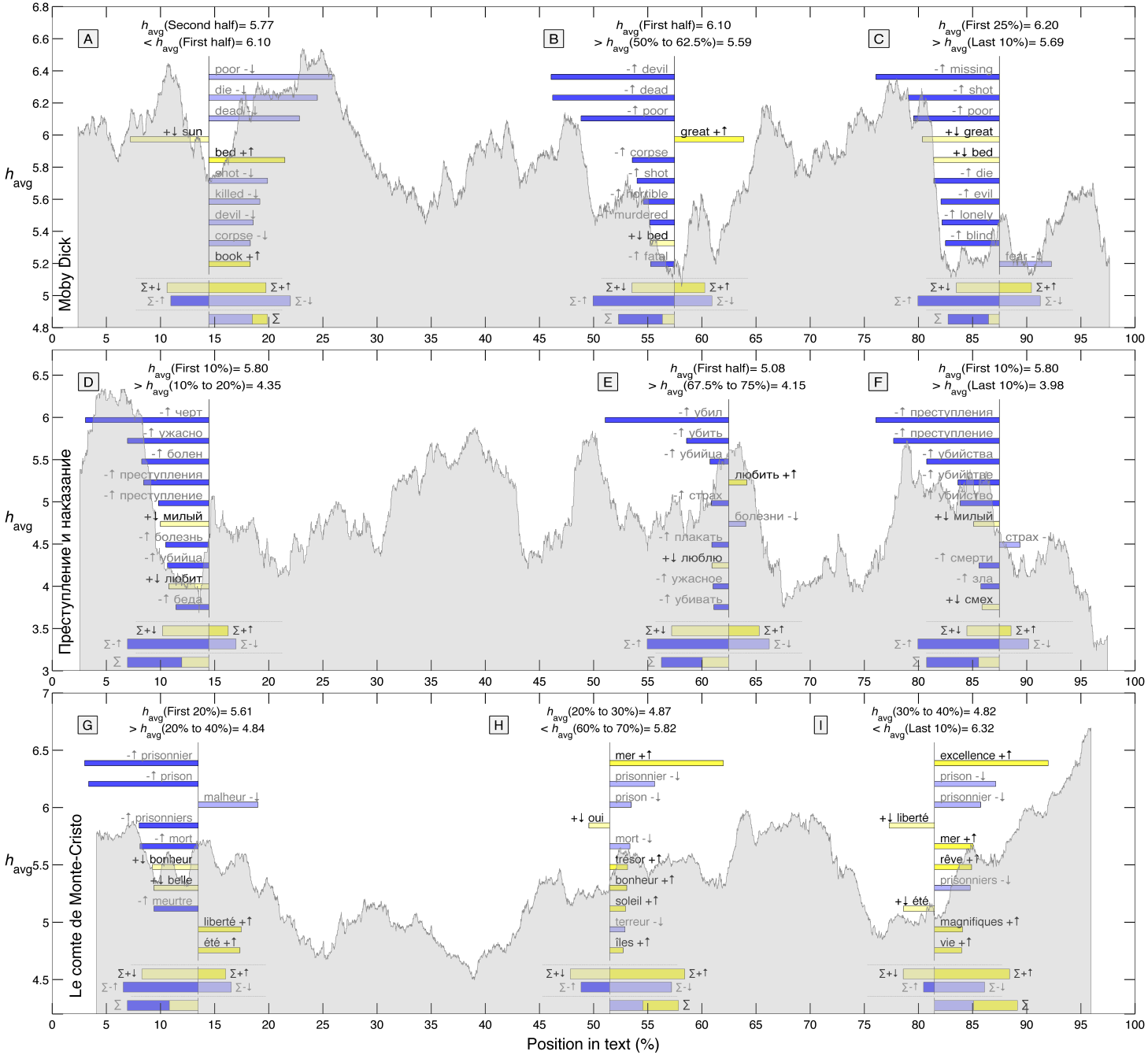
The emotional shapes of stories—Moby Dick:





Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References





Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

Online, interactive Emotional Shapes of Stories for 10,000+ books:

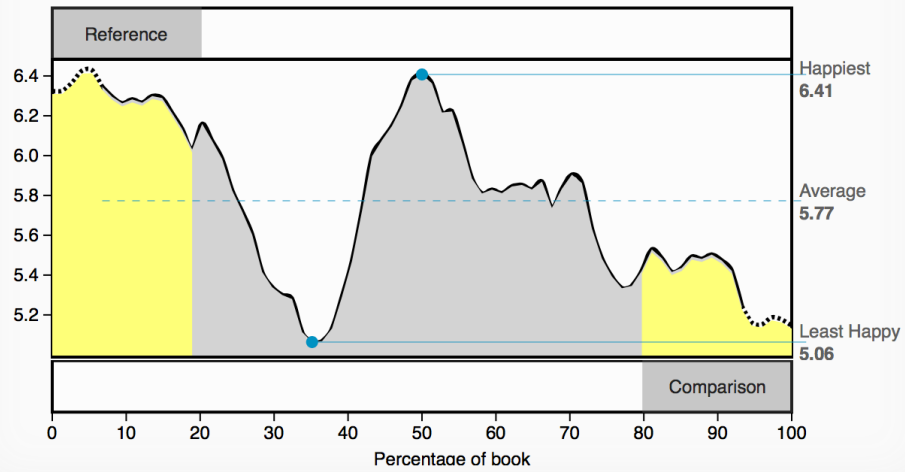
Frankenstein; Or the Modern Prometheus (wiki)

by Mary Shelley

Search Gutenberg Corpus | by Title | Classics | Harry Potter | Random

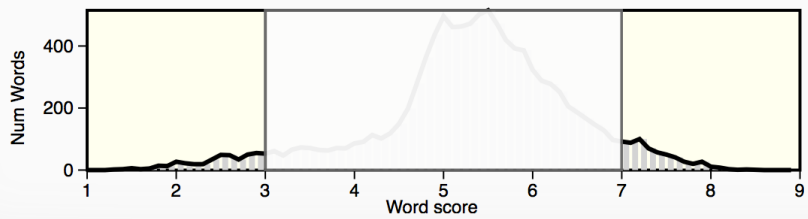
Book happiness time series:

Explore the work's emotional dynamics by sliding and resizing the reference and comparison sections.



Lens (for advanced users):

Slide and resize the stop-window to change the lens:

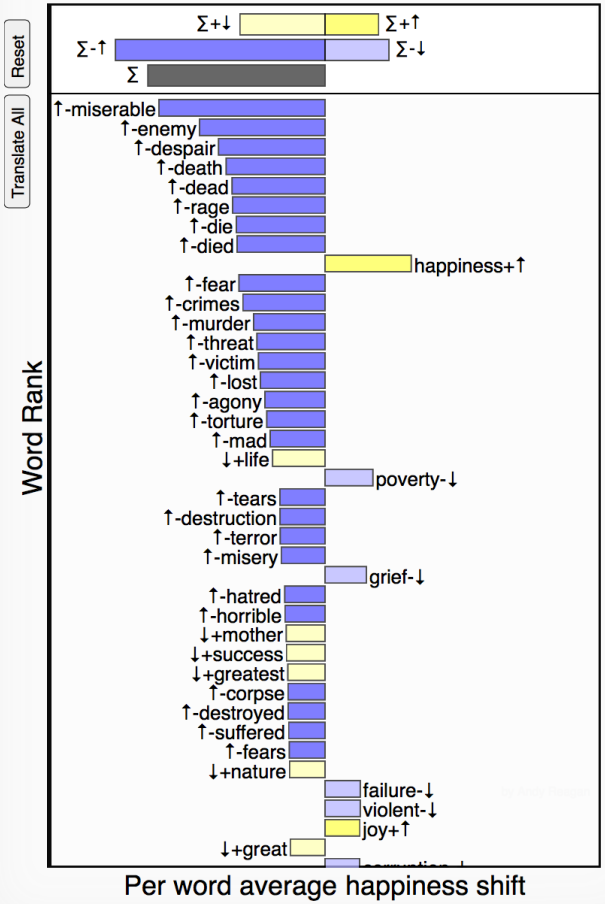


Word Shift:

Why comparison section is less happy than the reference one

Reference sections's happiness = 6.31

Comparison section's happiness = 5.35



Online, interactive Emotional Shapes of Stories for 10,000+ books:

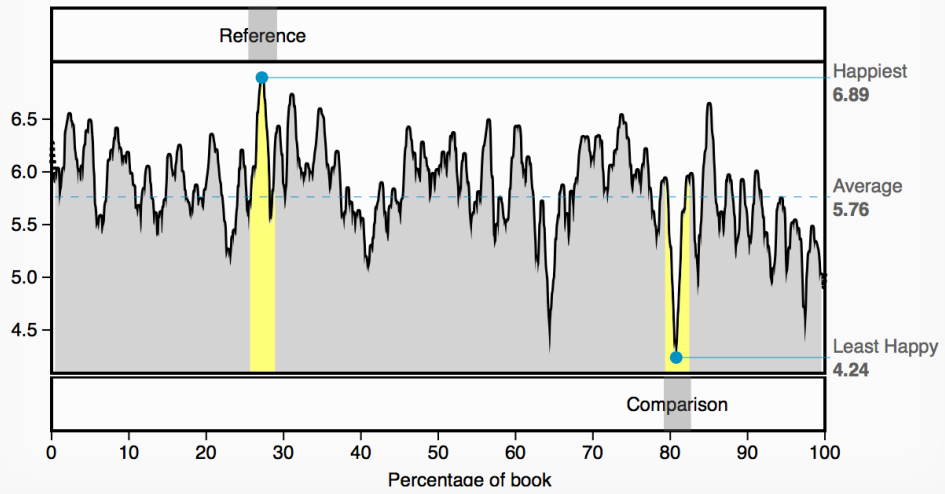
Harry Potter (all books together)

by J.K. Rowling

Search Gutenberg Corpus | by Title | Classics | Harry Potter | Random

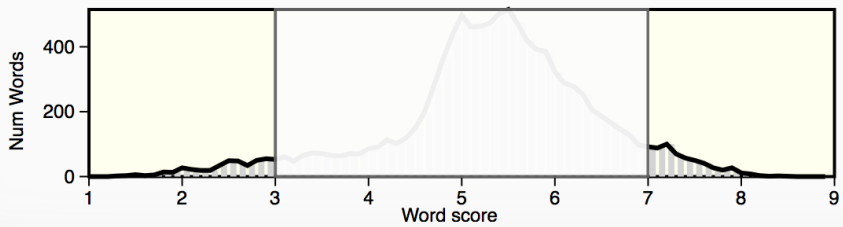
Book happiness time series:

Explore the work's emotional dynamics by sliding and resizing the reference and comparison sections.



Lens (for advanced users):

Slide and resize the stop-window to change the lens:

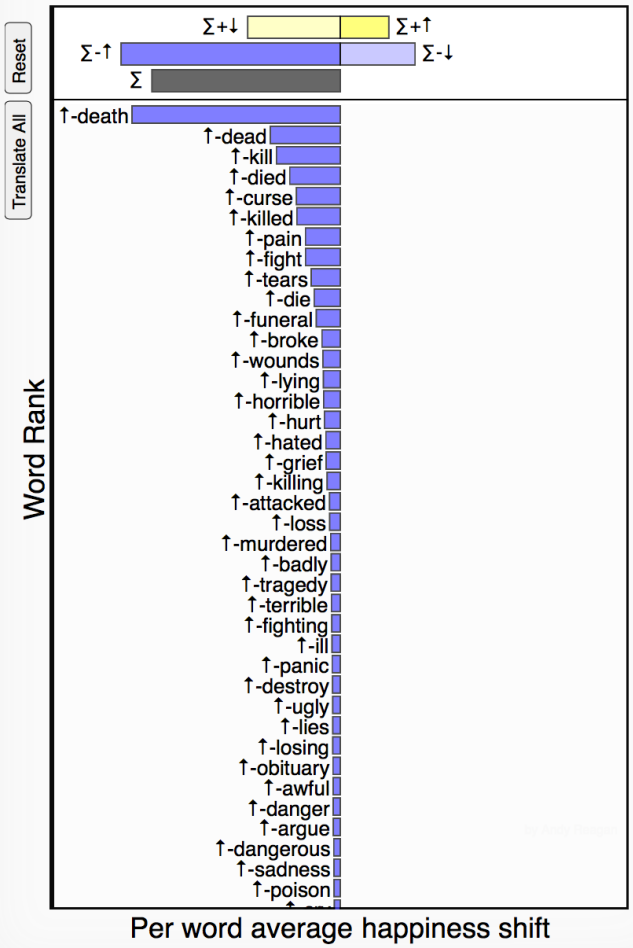


Word Shift:

Why comparison section is less happy than the reference one

Reference sections's happiness = 6.13

Comparison section's happiness = 5.14



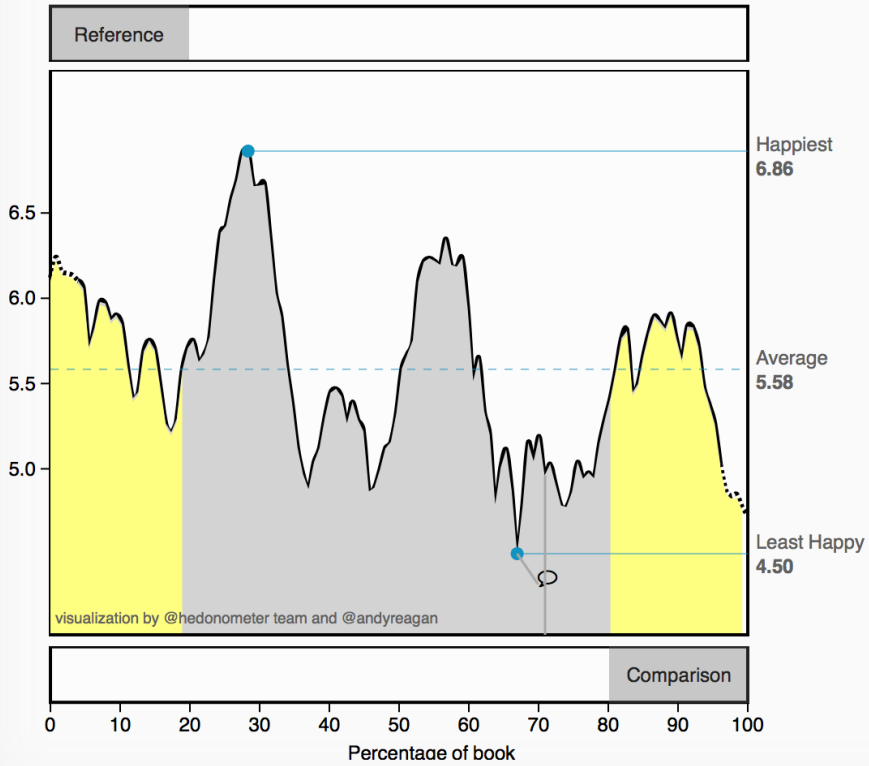
Online, interactive Emotional Shapes of Stories for 1,000+ movie scripts:

Pulp Fiction

directed by Quentin Tarantino

Search Movies | Classics | Team Picks | Random

Movie happiness time series:
Explore the work's emotional dynamics by sliding and resizing the reference and comparison sections.



Movie script:
Portion of script scored for each point in timeseries.

Zed takes the chair, sits it in front of the two prisoners, then lowers into it. Maynard hands The Gimp's leash to Zed, then backs away.

MAYNARD
(to The Gimp)
Down!

The Gimp gets on its knees.

Maynard hangs back while Zed appraises the two men.

MAYNARD
Who's first?

ZED
I ain't fer sure yet.

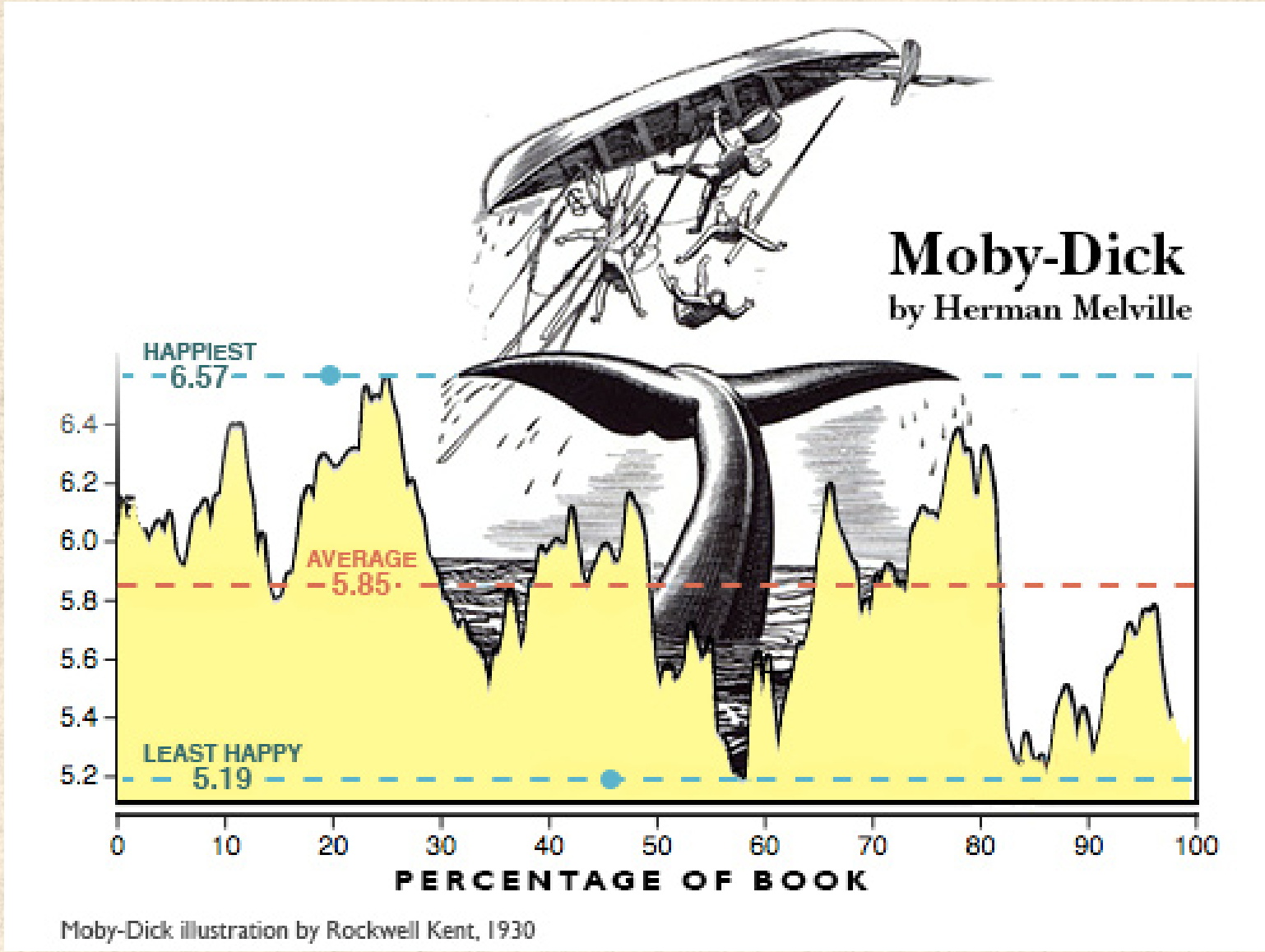
Then with his little finger, Zed does a silent "Eenie, meany, miney, moe... " just his mouth mouthing the words and his finger going back and forth between the two.

Butch are Marsellus are terrified.

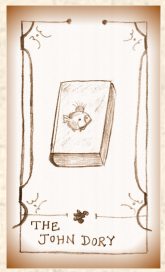
Maynard looks back and forth at the victims.

The Gimps's eyes go from one to the other inside the mask.

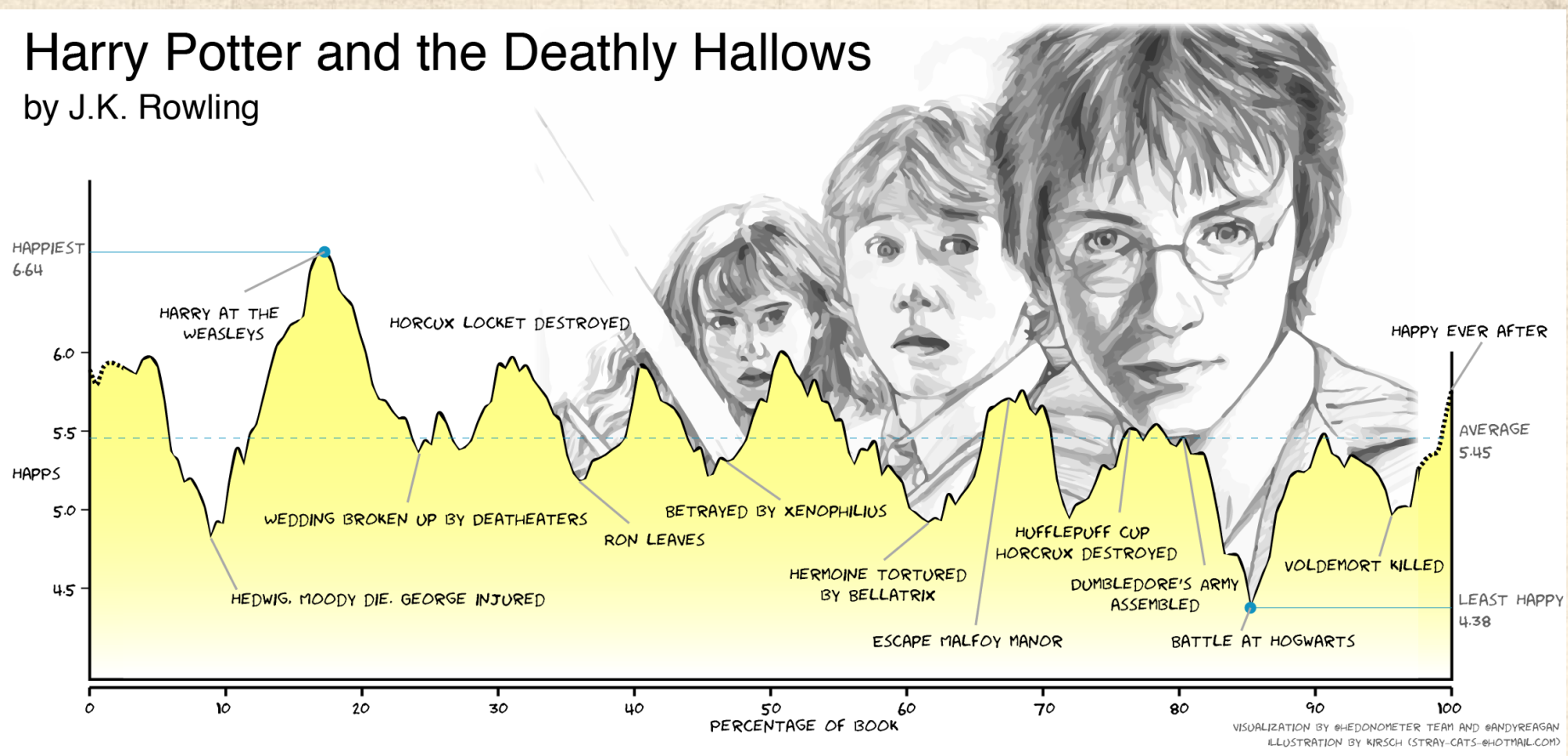
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

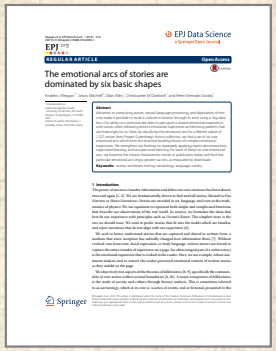


Moby-Dick illustration by Rockwell Kent, 1930



http://whyfiles.org/2015/in-10-languages-happy-words-beat-sad-ones/



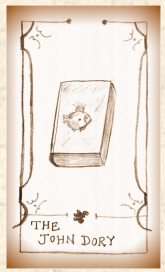


"The emotional arcs of stories are dominated by six basic shapes"

Reagan, Mitchell, Danforth, Dodds, and Dodds.

EPJ Data Science, **5**, 31, 2016. [18]

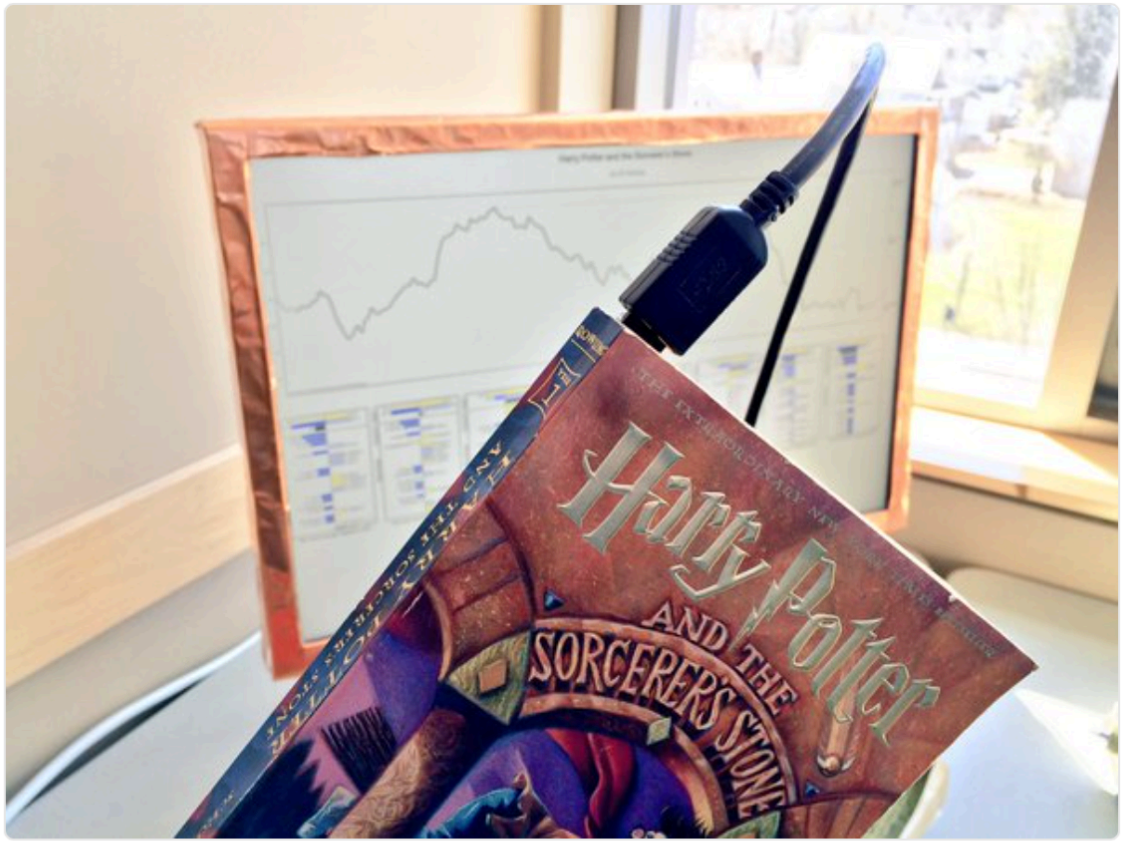
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



UVM
@uvmvermont

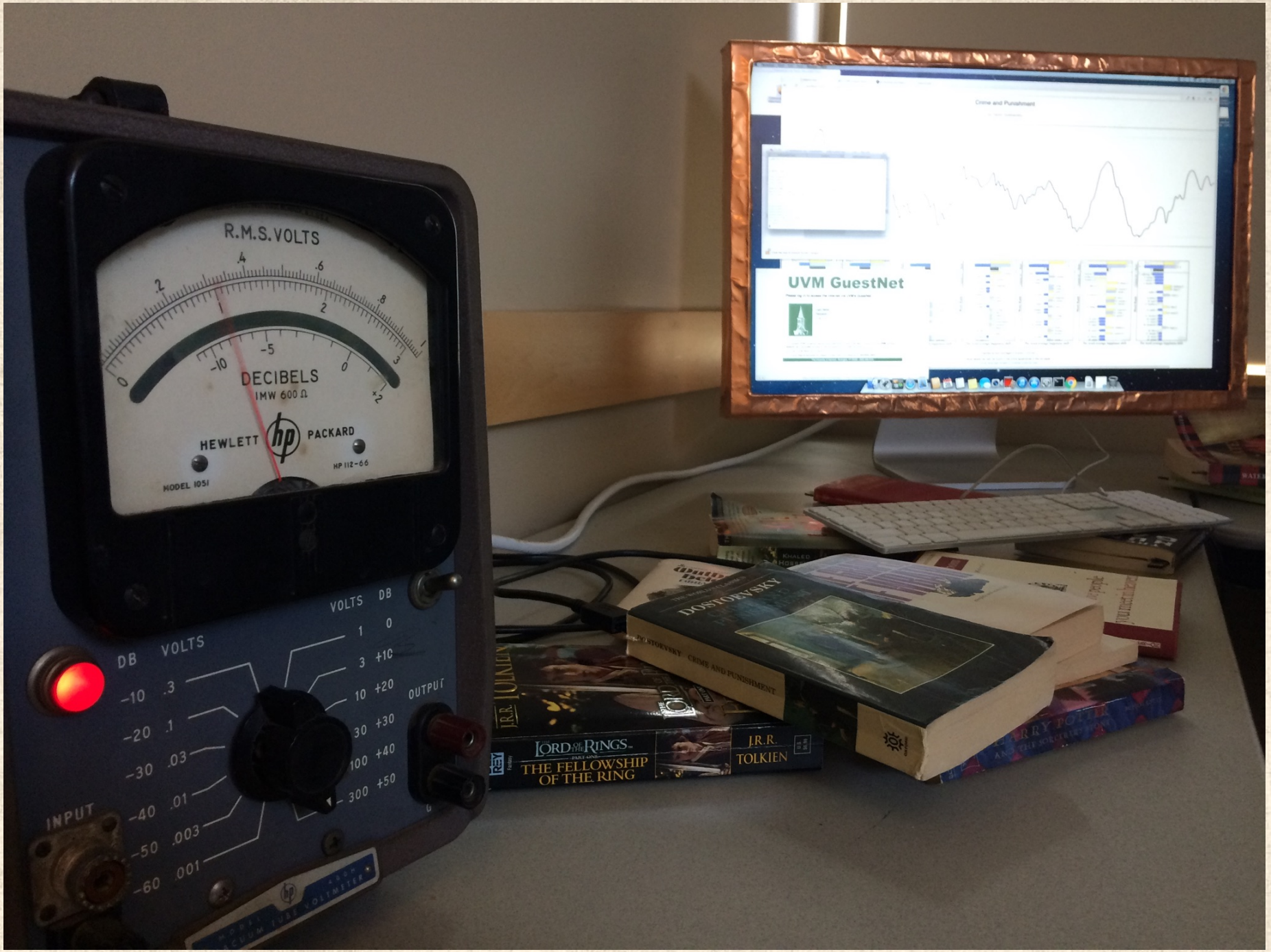
Following

USB in a book? What is this wizardry? Check it out at the Student Research Conference creative lounge. #uvmresearch



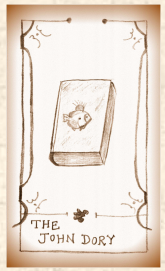
RETWEETS 8 LIKES 14

9:30 AM - 28 Apr 2016

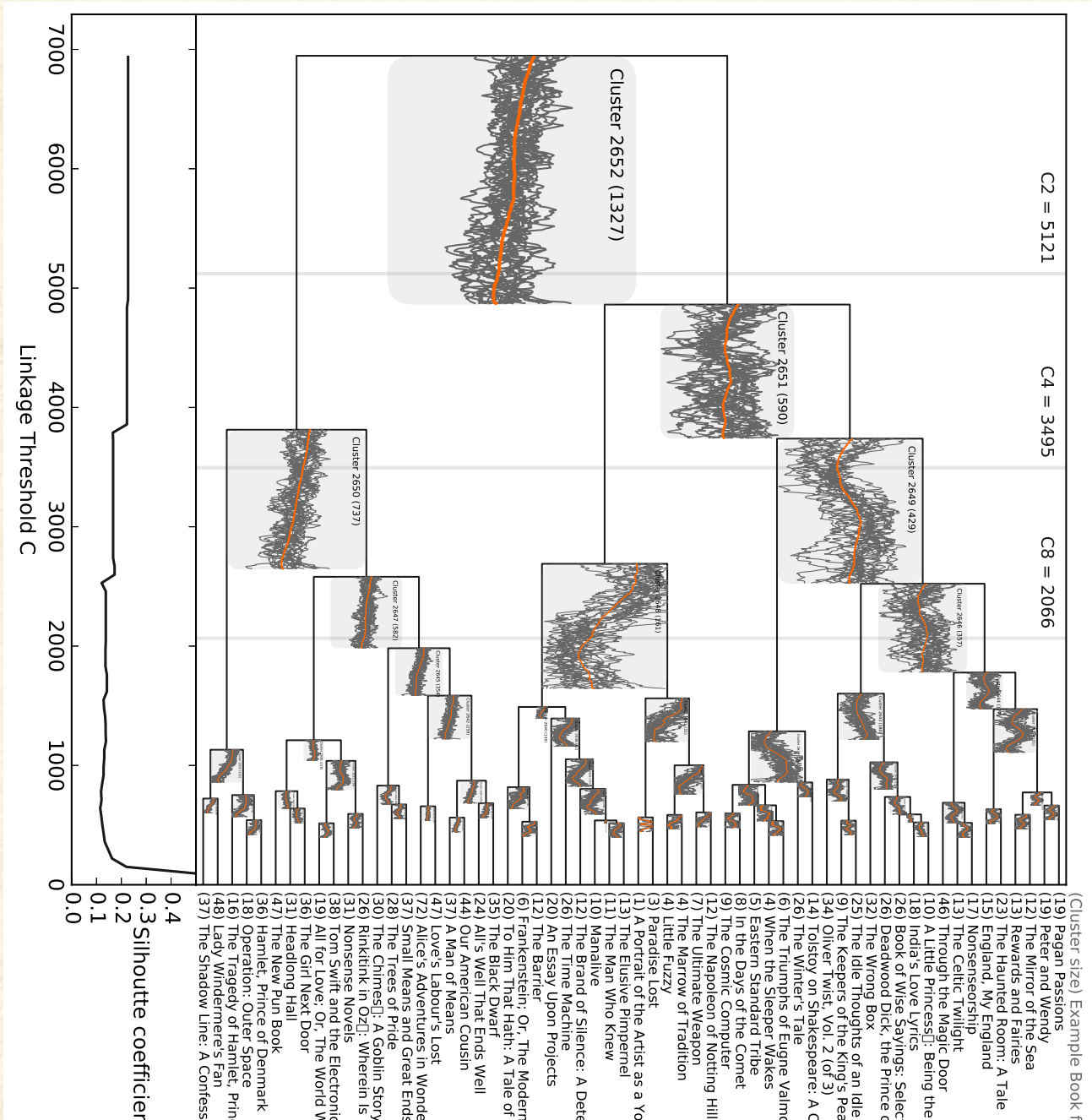

R.M.S. VOLTS
DECIBELS
1MW 600 Ω
HEWLETT PACKARD
MODEL 1051
HP 112-66
VOLTS DB
DB VOLTS
INPUT
OUTPUT
UVM GuestNet
DOSTOEVSKY
CRIME AND PUNISHMENT
THE FELLOWSHIP OF THE RING
J.R.R. TOLKIEN

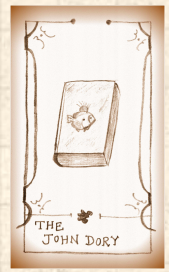
Harry Potter and the Chamber of Plot Devices:

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

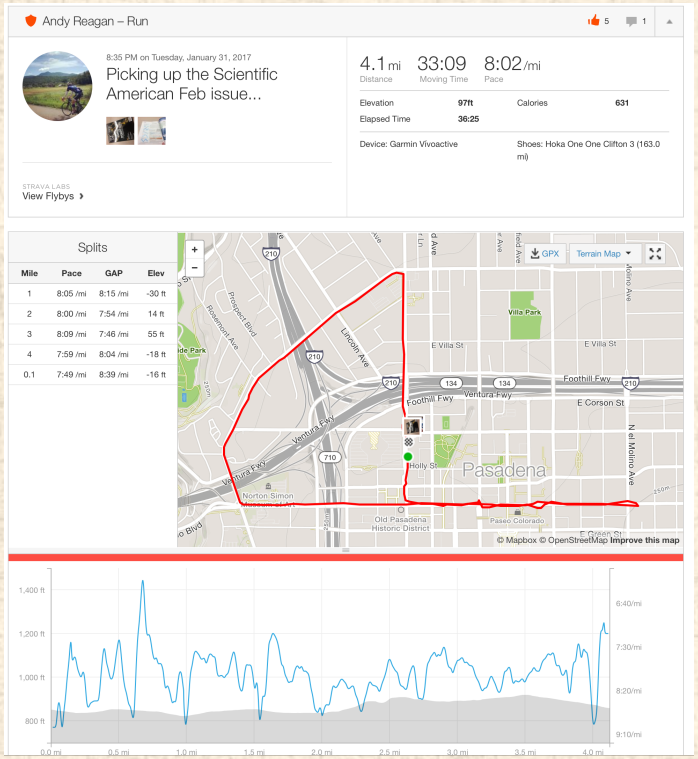


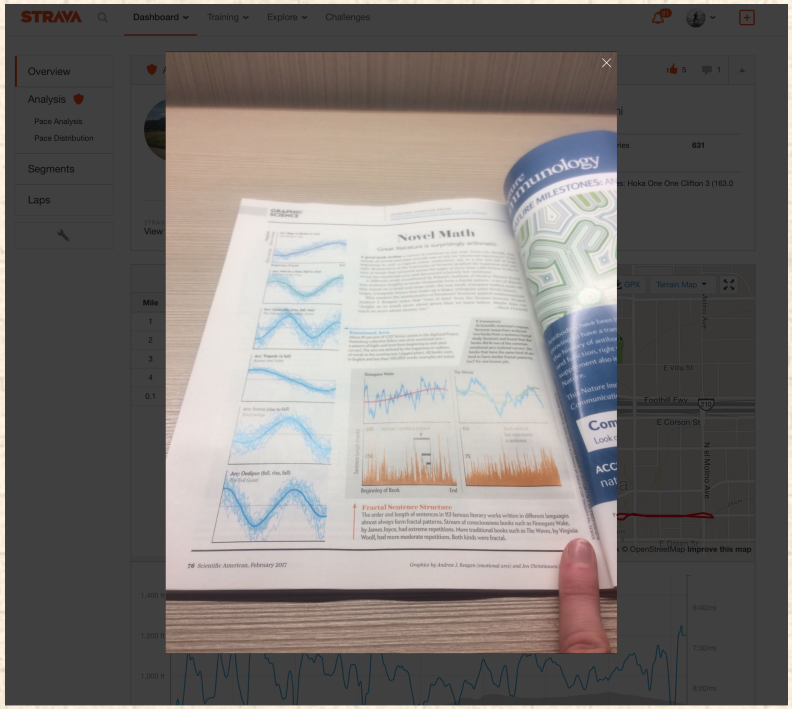
Emotional arcs for 1748 books from gutenberg.org



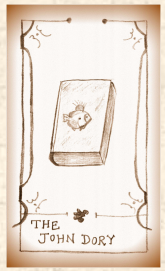


Another Great Moment in being Andy Reagan:





Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



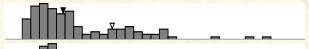
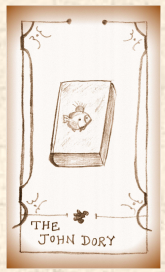
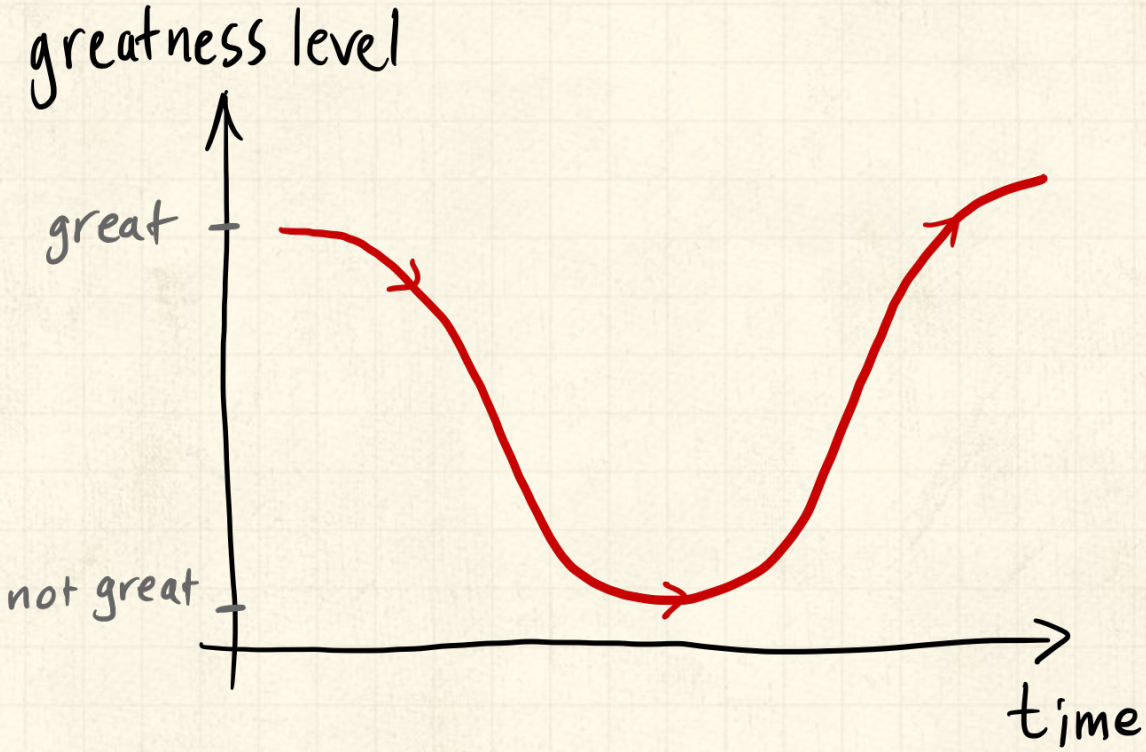
Mode	Mode Arc	N_m	N_m/N	DL Median ▼	DL Mean ▽	DL Variance	Download Distribution
SV 1		263	15.1%	295.0	644.3	2207201	
-SV 1		442	25.3%	337.5	636.0	913464	
SV 2		230	13.2%	314.0	630.3	1058916	
-SV 2		169	9.7%	296.0	569.1	780365	
SV 3		104	6.0%	298.0	874.5	7826797	
-SV 3		108	6.2%	298.0	748.7	2517822	
SV 4		108	6.2%	316.0	848.8	2763060	
-SV 4		50	2.9%	292.0	770.7	1546202	
SV 5		48	2.7%	280.0	421.7	182443	
-SV 5		48	2.7%	263.5	462.0	211259	

FIG. 6: Download statistics for SVD Modes with more than 2.5% of books. Modes *SV 3* through *-SV 4* (both polarities of modes 3 and 4) exhibit a higher average number of downloads and more variance than the rest.

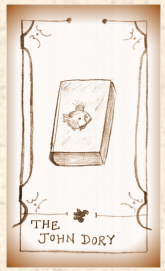


Stories matter:



- Used by Reagan and Bush in 1980.
- Template used by many others including Bill Clinton.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



A Science of Stories?

Stories are everything

- Probably, yes.

We talk about and study stories everywhere but ...

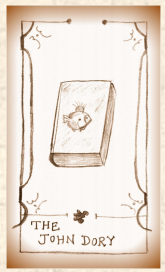
- We don't have a central place academically.
- Departments of: English, political science, folklore, cognitive sciences, arts, musicology, communication, ...

Organizing structure going forward:

- PLOS One foundational paper and collection[3]
- Annual meeting?
- Create a new journal: No.

[3] the journal formerly known as PLoS ONE

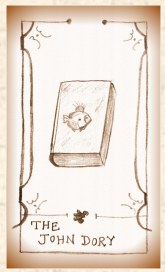
Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Observations/Claims/Questions:

- Primacy of storytelling and storybelieving in for individuals and populations.
- Maybe: Stories are dynamical paths; plots are algorithms that give rise to stories.
- Internet gives extraordinary power to propaganda, disinformation, conspiracy theories, ...
- Global social media creates a global robust-yet-fragile social system.
  - Failure can be endogenous (infighting) and/or ignited/supoorted from the outside.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



Observations/Claims/Questions:

- Basic social fabric: What is the spectrum of stories in the media being told about classes of people, from within and without.
- Story decoherence: telephone game
- What about stories about global problems like climate change? Government? Journalism?
- All separately powerful: Words, Music/Sound, Visual, ... interplay?
- Outcome: How to communicate scientific findings powerfully.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

References I

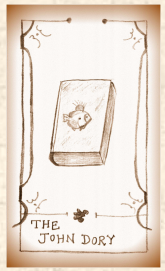
[1] J. Abello, P. Broadwell, and T. R. Tangherlini.
Computational folkloristics.
Communications of the ACM, 55:60–70, 2012.
pdf

[2] P. E. Auerswald.
The Code Economy: A Forty-Thousand Year History.
Oxford University Press, 2017.

[3] C. Booker.
The Seven Basic Plots: Why We Tell Stories.
Continuum, 2005.

[4] B. Boyd.
On the Origin of Stories: Evolution, Cognition, and Fiction.
Belknap Press, 2010.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



References II

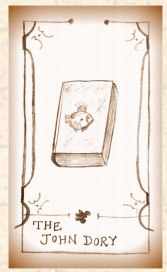
[5] J. Campbell.
The Hero with a Thousand Faces.
New World Lbirary, third edition, 2008.

[6] J. Campbell and B. Moyers.
The Power of Myth.
Anchor, 1991. pdf

[7] E. Cheng.
How to bake pi: An edible exploration of the mathematics of mathematics.
Basic Books, 2015.

[8] B. Christian and T. Griffiths.
Algorithms to Live By.
Macmillan, 2016.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



References III

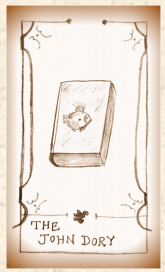
[9] A. DeGraff.
Plotted: A Literary Atlas.
Pulp/Zest Book, 2015.

[10] M. Erwig.
Once Upon an Algorithm.
MIT Press, 2017.

[11] J. Gottschall.
The Storytelling Animal: How Stories Make Us Human.
Mariner Books, 2013.

[12] F. Heider and M. Simmel.
An experimental study in apparent behavior.
The American Journal of Psychology, 57:243–159, 1944. pdf

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References

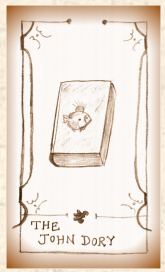


References IV

[13] D. P. Kiley, A. J. Reagan, L. Mitchell, C. M. Danforth, and P. S. Dodds.
The game story space of professional sports: Australian Rules Football.
Physical Review E, 93, 2016.
Available online at http://arxiv.org/abs/1507.03886. pdf

[14] E. Kim.
Entertaining beliefs in economic mobility.
https://www.dropbox.com/s/i9pm6wd51c3fzbh/Kim_WS.pdf?dl=0, 2018. pdf

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



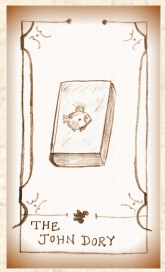
References V

[15] G. King, J. Pan, and M. E. Roberts.
How the Chinese government fabricates social media posts for strategic distraction, not engaged argument.
American Political Science Review, 2017 Forthcoming. pdf

[16] W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery.
Numerical Recipes in C.
Cambridge University Press, second edition, 1992.

[17] M. Puchner.
The Written World: How Literature Shaped Civilization.
Random, 2017.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



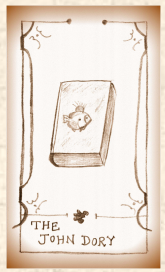
References VI

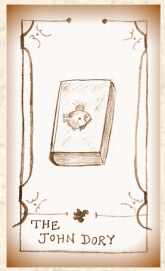
[18] A. J. Reagan, L. Mitchell, C. M. Danforth, and P. S. Dodds.
The emotional arcs of stories are dominated by six basic shapes.
EPJ Data Science, 5:31, 2016.
Available at http://arxiv.org/abs/1606.06820.pdf

[19] R. J. Shiller.
Narrative economics.
American Economic Review, 107(4):967–1004, 2017. pdf

[20] B. Snyder.
Save the Cat!
Michael Wiese Productions, 2005.

Storytellers
Stories
Power
Taxonomy
Essence
Memory & Turbulence
Emotional Arcs
Moving ahead
References



References VII

[21] J. J. Tehrani.
The phylogeny of Little Red Riding Hood.
PLoS ONE, 8:e78871, 2013. pdf