

What's the Story?

Last updated: 2021/12/07, 02:49:05 EST

Principles of Complex Systems, Vols. 1 & 2
CSYS/MATH 300 and 303, 2021-2022 | @pocsvox

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.

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

1 of 90

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

2 of 90

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

6 of 90

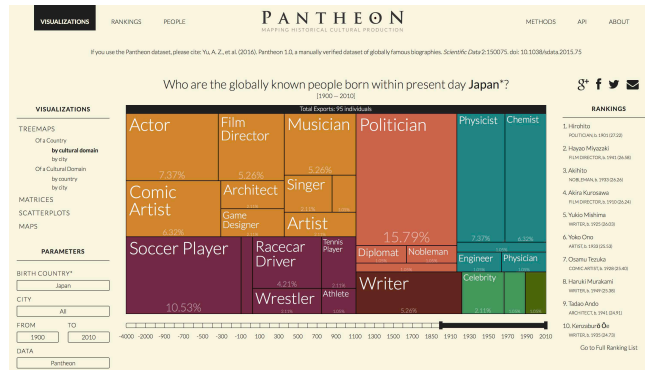
Major competing storytelling entities:

- 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.

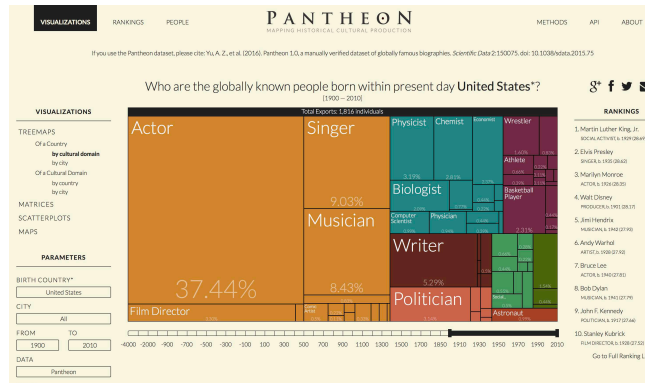
The famous are storytellers—Japan:



For people born 1950-

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

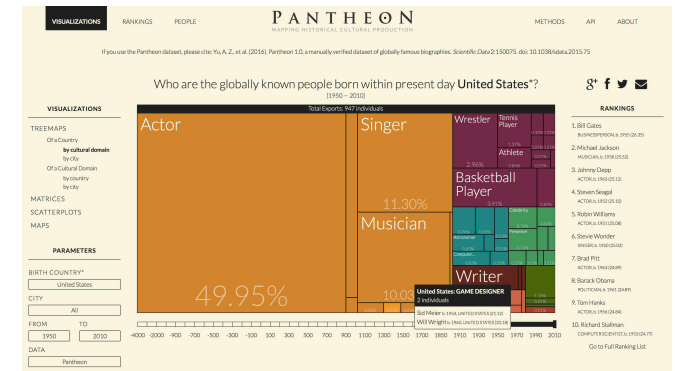
The famous are storytellers—United States:



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

Outline

Storytellers

Stories

Power

Taxonomy

Essence

Emotional Arcs

Moving ahead

References

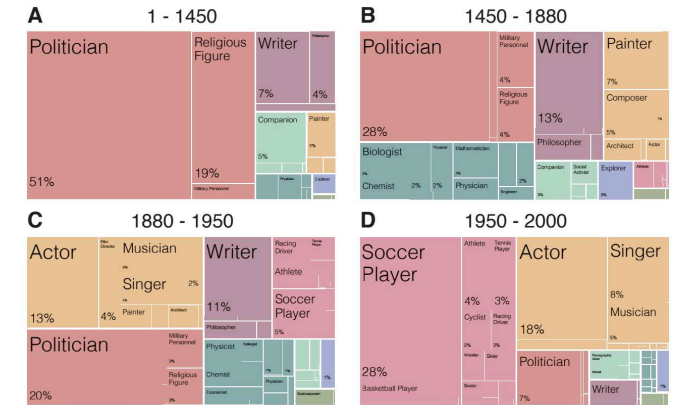
Super Survival of the Stories:



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.

6 of 90



<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).



"The Storytelling Animal: How Stories Make Us Human" by Jonathan Gottschall (2013).

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

12 of 90

(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.”

PoCS @pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

We see (certain kinds of) stories:

Heider and Simmel, 1944 [12]

13 of 90

PoCS @pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

16 of 90

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

Game of Thrones, S6E06: The Iron Throne

“What unites people? Armies? Gold? Flags?”¹ Stories.

There's nothing in the world more powerful than a good story. Nothing can stop it. No enemy can defeat it.”

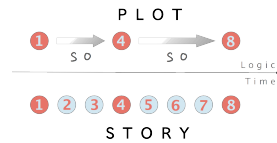


¹Character is the shortcut to story

16 of 90

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 \equiv Story.
- Plot**: Essential sequence of a story's elements.²



Plot = Algorithm

²By まとりよ 国しか — Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?title=Plot&id=24054523>

19 of 90

Understanding the Sociotechnocene—Stories:

- 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 \leftrightarrow Algorithms



22 of 90

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 ...

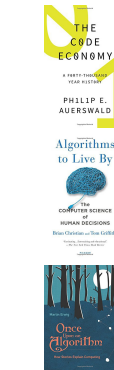
18 of 90

PoCS @pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

19 of 90

Algorithms, recipes, stories, ...



“The Code Economy: A Forty-Thousand Year History” by Philip E Auerwald (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]

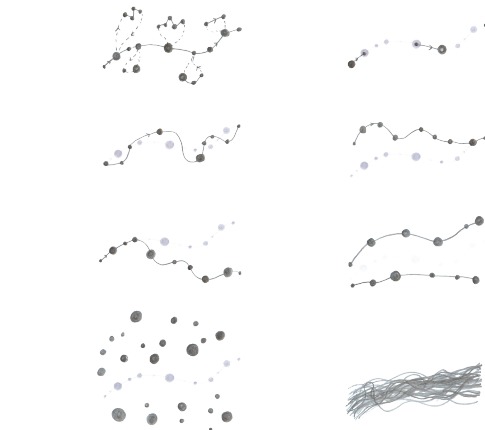
22 of 90

PoCS @pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

20 of 90

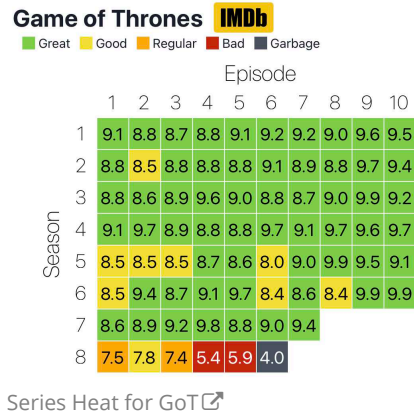
Adjacent narratives—why mistruths and conspiracy theories exist and flourish:



24 of 90

Stories are the essence of ... oh no, no, no

- Except for writers who destroy their own stories.
- Also audiences.
- Basic word of mouth.
- And critics.
- And other, better stories.
- Character assassination works too.



PoCS @pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

21 of 90

PoCS @pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

22 of 90

PoCS @pocsvox
What's the Story?

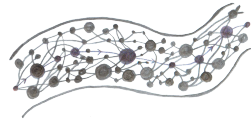
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

24 of 90

Why adjacent narratives exist and untrue stories flourish:

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

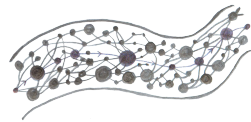
- Impossible to record every detail.
- Recording entails compression to scale of medium (narrative hierarchy).
- Story logic will be favored, and seemingly irrelevant aspects discarded.



Why adjacent narratives exist and untrue stories flourish:

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

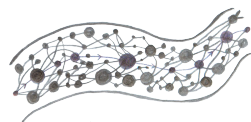
- Better = More engaging, more motivating to spread, more durable under spreading.
- Better stories exist for truthful recorders and retellers (journalists).



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).



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

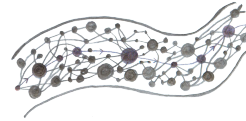
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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.



1999 Gallup poll: [link](#)

- 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 [link](#), [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."



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



[Phantom time hypothesis](#) [link](#):

- 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.

[Finland does not exist:](#)



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)



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References





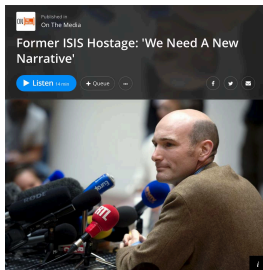
"The Written World: How Literature Shaped Civilization" [by Martin Puchner \(2017\).](#) ^[17]

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](#)

Story Wars:



[Nicholas Hénin](#), French Journalist, held captive for 10 months [.](#)

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.

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



- "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." "

[PoCS @pocsvox](#) What's the Story? 34 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

The Attack on the United States Capitol [.](#)



Photo: Evelyn Hockstein for The Washington Post

[Washington Post's massive analysis](#)
Red Flags, Bloodshed, Contagion

Senate Chaplain Barry Black:

"These tragedies have reminded us that words matter, and that the power of life and death is in the tongue."

[PoCS @pocsvox](#) What's the Story? 35 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
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.onthemedial.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."

[PoCS @pocsvox](#) What's the Story? 36 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
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.

[PoCS @pocsvox](#) What's the Story? 37 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
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

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.

[PoCS @pocsvox](#) What's the Story? 38 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

[PoCS @pocsvox](#) What's the Story? 39 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

[PoCS @pocsvox](#) What's the Story? 40 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

[PoCS @pocsvox](#) What's the Story? 41 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

[PoCS @pocsvox](#) What's the Story? 42 of 90

Book (story) burning (451 °F)



PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

43 of 90

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]

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

44 of 90

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."

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

45 of 90

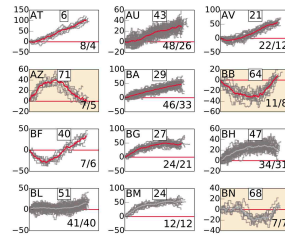
Claim: Stories must have "real" substance to endure over generations³

- 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.

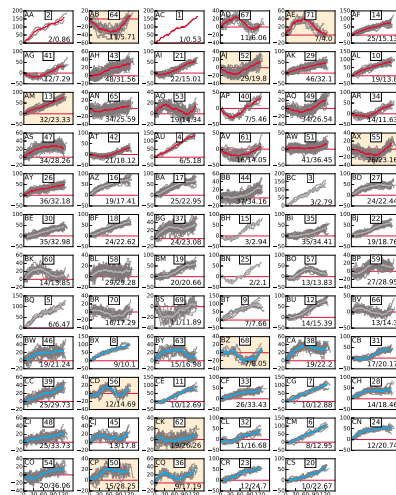
³Reality is being tested harshly



"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



PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

46 of 90

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

47 of 90

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

48 of 90

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."

Competitive Punning, The Economist, 2017-08-12

The quip and the dread Why English is such a great language for puns

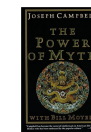
Gamers now even take part in world championships

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!

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

49 of 90

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

50 of 90

PoCS @pocsvox What's the Story? Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

51 of 90

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.

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References



"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."

52 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References



"The Seven Basic Plots: Why We Tell Stories" by Christopher Booker (2005). [3]

Seven "good" stories?:



"The Seven Basic Plots: Why We Tell Stories" by Christopher Booker (2005). [3]

- Seven Gateways to the Underworld (?)
- Overcoming the Monster x2 and the Thrilling escape from Death (plot).
- Rags to Riches (plot).
- The Quest (plot).
- Voyage and Return (plot).
- Comedy x2 (plot but really structure).
- Tragedy x3 (plot).
- Rebirth (plot).
- The Dark Power: From Shadow into Light (master structure).

53 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

Folkloristics:

Academic area formally started around 1900.

Aarne-Thompson classification systems

Motif-based taxonomy.

Online classification database

54 of 90

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 810-828
 - 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

54 of 90

The taxonomy of stories:

Fundamental arcs:

- Kill the Monster.
- Rags to Riches (and Riches to Rags—*Metamorphosis*).
- 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.

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence 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"

55 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

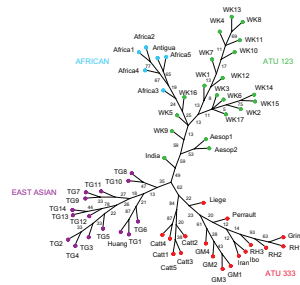


Figure 2. Majority-rule consensus of the most parsimonious trees returned by the cladistic analysis of the tales. Major groups are indicated by regions of PCA (continental type) and indicated by the colored circles. Sub-groups are indicated in the web labels (e.g., "Africa1" refers to "Africa1 = Story of Grandmother Cat" in Cameroon, etc.). The "Indo" and "Indo" labels refer to "Indo-European" variants by particular authors, or their corresponding groups that are discussed in the text have been individual labels. Numbers beside the edges represent the level of support for individual clades assumed by the bootstrap analysis. doi:10.1371/journal.pone.0218111.g002

56 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

The boiled-down essence of stories:

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.

57 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

58 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

60 of 90

PoCS @pocsvox What's the Story?

Storytellers Stories Power Taxonomy Essence Emotional Arcs Moving ahead References

60 of 90

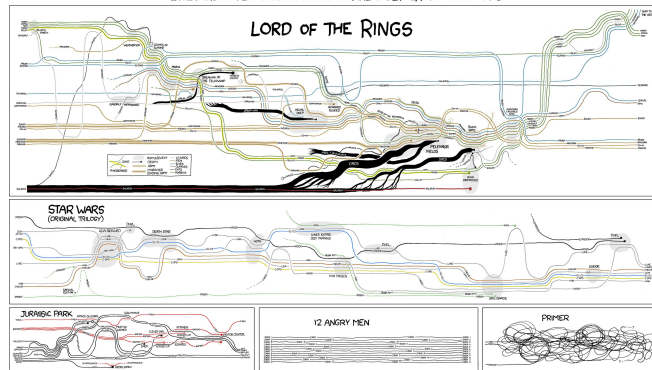
Kurt Vonnegut on the Shapes of Stories
 Longer piece with bonus stories (Metamorphosis and Hamlet).

- PoCS @pocsvox What's the Story?
- Storytellers
- Stories
- Power
- Taxonomy
- Essence
- Emotional Arcs
- Moving ahead
- References

61 of 90

Emotional arcs are not plots. Neither are character paths:

THESE CHARTS SHOW MOVIE CHARACTER INTERACTIONS. THE HORIZONTAL AXIS IS TIME. THE VERTICAL GROUPING OF THE LINES INDICATES WHICH CHARACTERS ARE TOGETHER AT A GIVEN TIME.



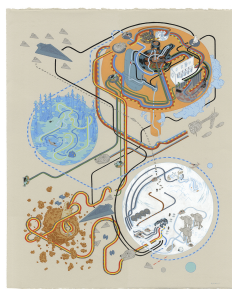
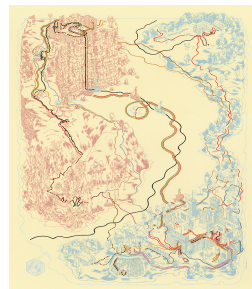
https://xkcd.com/657/



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

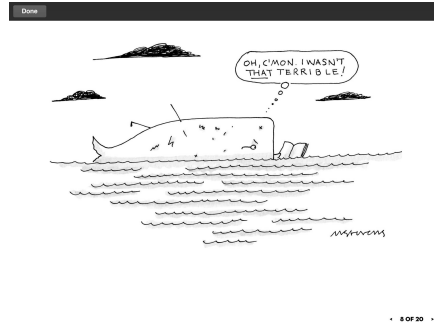
- PoCS @pocsvox What's the Story?

- Storytellers
- Stories
- Power
- Taxonomy
- Essence
- Emotional Arcs
- Moving ahead
- References



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

63 of 90



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."

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.

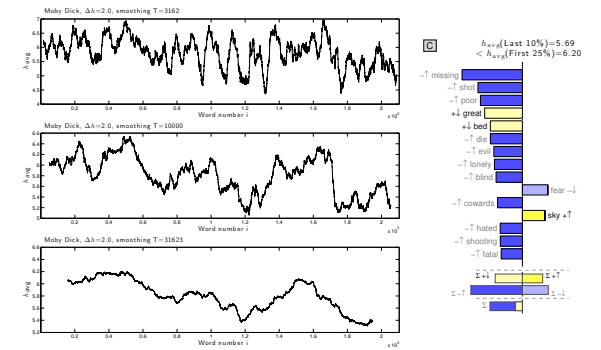
63 of 90

- PoCS @pocsvox What's the Story?

- Storytellers
- Stories
- Power
- Taxonomy
- Essence
- Emotional Arcs
- Moving ahead
- References

64 of 90

The emotional shapes of stories—Moby Dick:



- PoCS @pocsvox What's the Story?

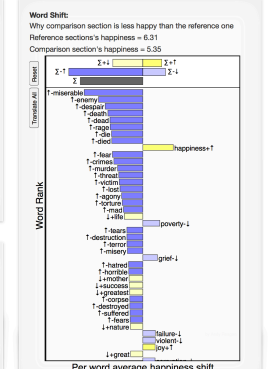
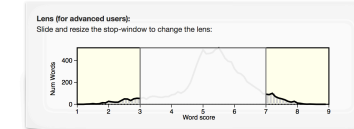
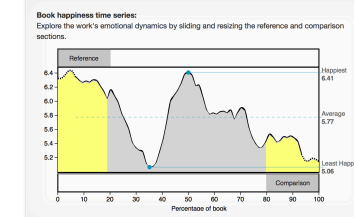
- Storytellers
- Stories
- Power
- Taxonomy
- Essence
- Emotional Arcs
- Moving ahead
- References

65 of 90

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

Frankenstein; Or the Modern Prometheus

by Mary Shelley



66 of 90

- PoCS @pocsvox What's the Story?

- Storytellers
- Stories
- Power
- Taxonomy
- Essence
- Emotional Arcs
- Moving ahead
- References

67 of 90

- PoCS @pocsvox What's the Story?

- Storytellers
- Stories
- Power
- Taxonomy
- Essence
- Emotional Arcs
- Moving ahead
- References

68 of 90

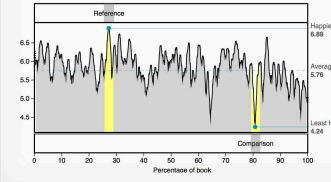
Online, interactive Emotional Shapes of Stories for 10,000+ books:

Harry Potter (all books together)

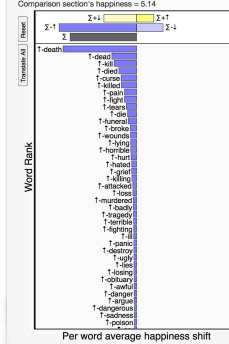
by J.K. Rowling

Search Gutenberg Corpus by Title Classics Harry Potter Random

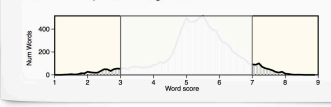
Book happiness time series:
Explore the work's emotional dynamics by sliding and resizing the reference and comparison sections.



Word Shift:
Why comparison section is less happy than the reference one
Reference section's happiness = 5.14
Comparison section's happiness = 6.13



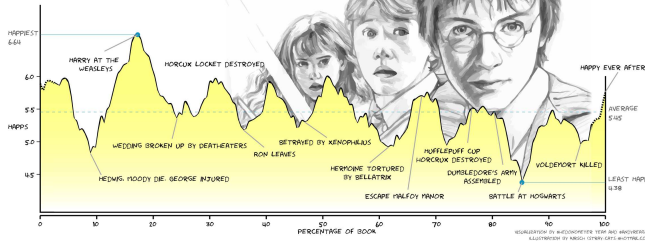
Lens (for advanced users):
Slide and resize the stop-window to change the lens:



Per word average happiness shift

Harry Potter and the Deathly Hallows

by J.K. Rowling



"The emotional arcs of stories are dominated by six basic shapes" Reagan, Mitchell, Danforth, Dodds, and Dodds. EPJ Data Science, 5, 31, 2016. [18]

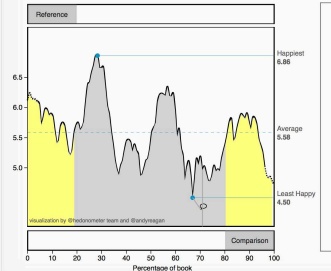
Online, interactive Emotional Shapes of Stories for 1,000+ movie scripts:

Pulp Fiction

directed by Quentin Tarantino

Search Movies by Title 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.

Sed takes the chair, sits it in front of the two prisoners, then lowers into it. Hayward grabs the chair's back and Sed, then back away.
MURKIN
(to the girls)
Down!
The girls gets on its knees.
Hayward hangs back while Ed appraises the two men.
MURKIN
Who's first?
RED
I ain't for sure yet.
Then with his little finger, red does a slight "Bowie, Bowie, mmm, mmm..." just his mouth mouthing the words and his finger going back and forth between the two.
Bitch are Maxwell are verified.
Hayward looks back and forth at the vicious.
The girls's eyes go from one to the other inside the mask.

UVM @uvmvermont Following

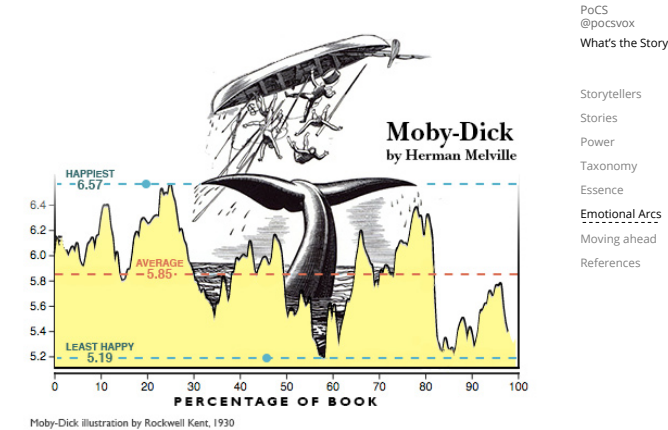
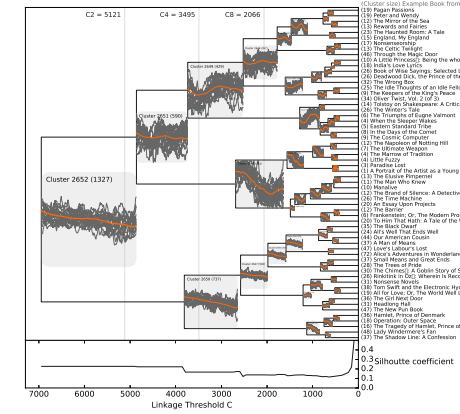
USB in a book? What is this wizardry? Check it out at the Student Research Conference creative lounge. #uvmresearch

8 RETWEETS 14 LIKES

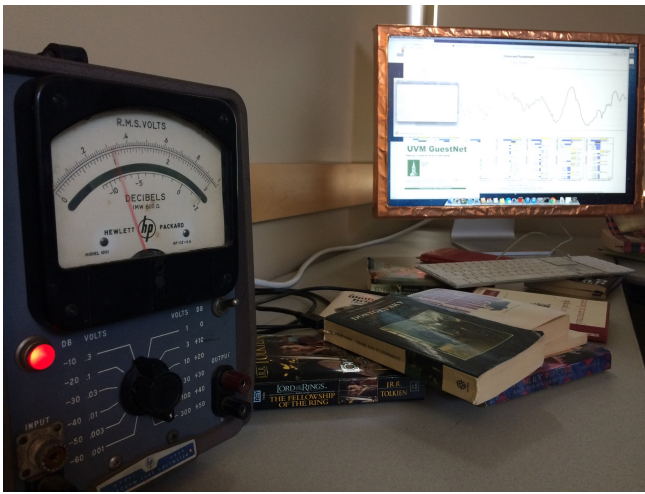
9:30 AM - 28 Apr 2016

Harry Potter and the Chamber of Plot Devices:

Emotional arcs for 1748 books from gutenberg.org



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



Another Great Moment in being Andy Reagan:

PoCS @pocsvox What's the Story?
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

76 of 90

PoCS @pocsvox What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

77 of 90

PoCS @pocsvox What's the Story?

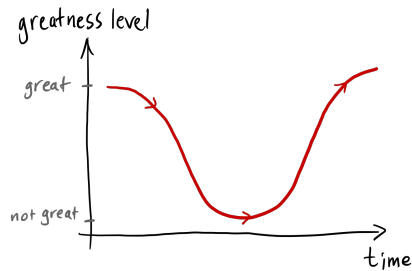
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

78 of 90

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.

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 collection⁴
- Annual meeting?
- SOCKS: Study of Online Collective Knowledge and Stories

⁴the journal formerly known as PLoS ONE

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



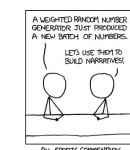
Observations/Claims/Questions:

- 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/suported from the outside.

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.

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

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



References I

- J. Abello, P. Broadwell, and T. R. Tangherlini. Computational folkloristics. Communications of the ACM, 55:60–70, 2012. [pdf](#)
- P. E. Auerswald. The Code Economy: A Forty-Thousand Year History. Oxford University Press, 2017.
- C. Booker. The Seven Basic Plots: Why We Tell Stories. Continuum, 2005.
- B. Boyd. On the Origin of Stories: Evolution, Cognition, and Fiction. Belknap Press, 2010.

References II

- J. Campbell. The Hero with a Thousand Faces. New World Library, third edition, 2008.
- J. Campbell and B. Moyers. The Power of Myth. Anchor, 1991. [pdf](#)
- E. Cheng. How to bake pi: An edible exploration of the mathematics of mathematics. Basic Books, 2015.
- B. Christian and T. Griffiths. Algorithms to Live By. Macmillan, 2016.

References III

- A. DeGraff. Plotted: A Literary Atlas. Pulp/Zest Book, 2015.
- M. Erwig. Once Upon an Algorithm. MIT Press, 2017.
- J. Gottschall. The Storytelling Animal: How Stories Make Us Human. Mariner Books, 2013.
- F. Heider and M. Simmel. An experimental study in apparent behavior. The American Journal of Psychology, 57:243–159, 1944. [pdf](#)

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
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. [pdf](#)
- [14] E. Kim. Entertaining beliefs in economic mobility. https://www.dropbox.com/s/i9pm6wd51c3fzbh/Kim_WS.pdf?dl=0, 2018. [pdf](#)
- [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](#)

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References




88 of 90

References V

- [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.
- [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](#)

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References




89 of 90

References VI

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

PoCS
@pocsvox
What's the Story?

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



90 of 90