Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

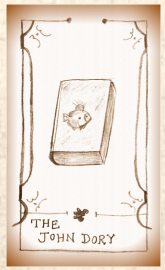
What's the Story?

Last updated: 2023/08/22, 11:48:25 EDT

Principles of Complex Systems, Vols. 1, 2, & 3D
CSYS/MATH 6701, 6713, & a pretend number, 2023–2024| @pocsvox

Prof. Peter Sheridan Dodds | @peterdodds

Computational Story Lab | Vermont Complex Systems Center
Santa Fe Institute | University of Vermont



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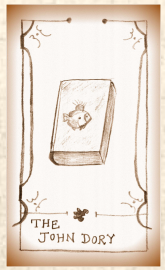

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References

Special Guest Executive Producer

On Instagram at pratchett_the_cat

Outline

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Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

Storytellers

Stories

Power

Taxonomy

Essence

Emotional Arcs

Moving ahead

References

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

Story editor

Every can opener is a possible pillow.

Typed by Pratchett the Cat:

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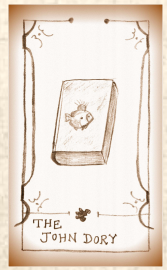
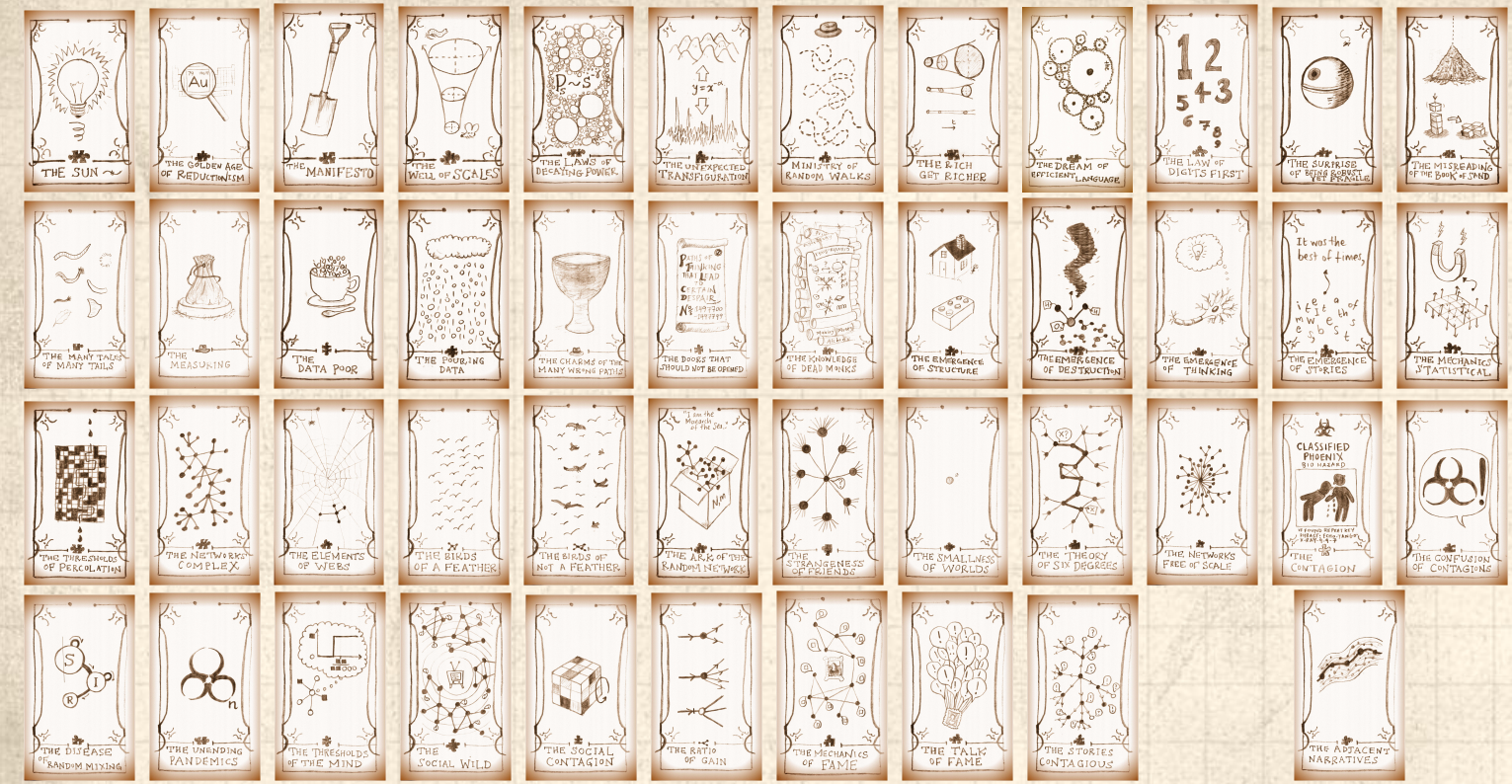
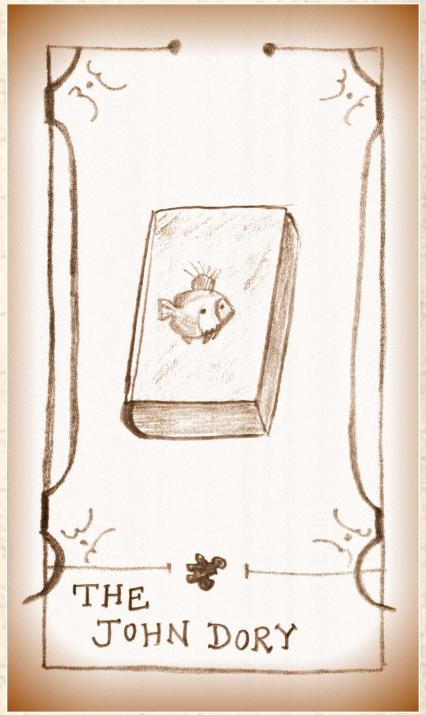



THE SUN
THE GOLDEN AGE OF REDUCTIONISM
THE MANIFESTO
THE WELL OF SCALES
THE LAWS OF DECAYING POWER
THE UNEXPECTED TRANSFIGURATION
MINISTRY OF RANDOM WALKS
THE RICH GET RICHER
THE DREAM OF EFFICIENT LANGUAGE
THE LAW OF DIGITS FIRST
THE SURPRISE OF BEING BORROWED AND BLUE
THE MISREADING OF THE BOOK OF 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

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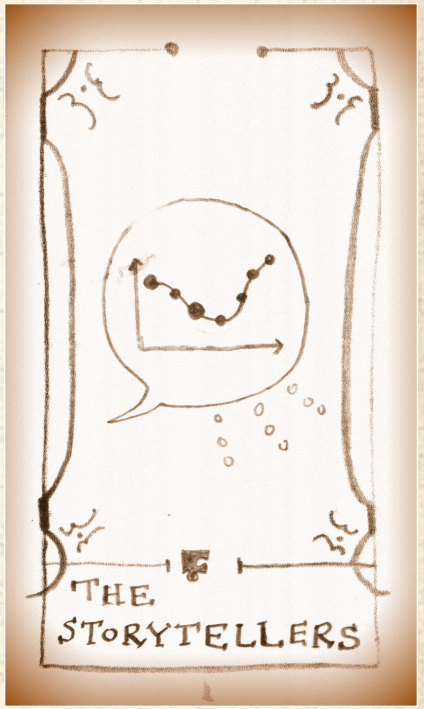
THE STORYTELLERS

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.

Major competing storytelling entities:

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

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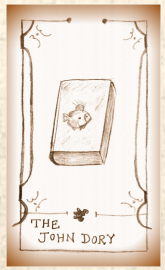
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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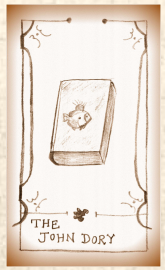
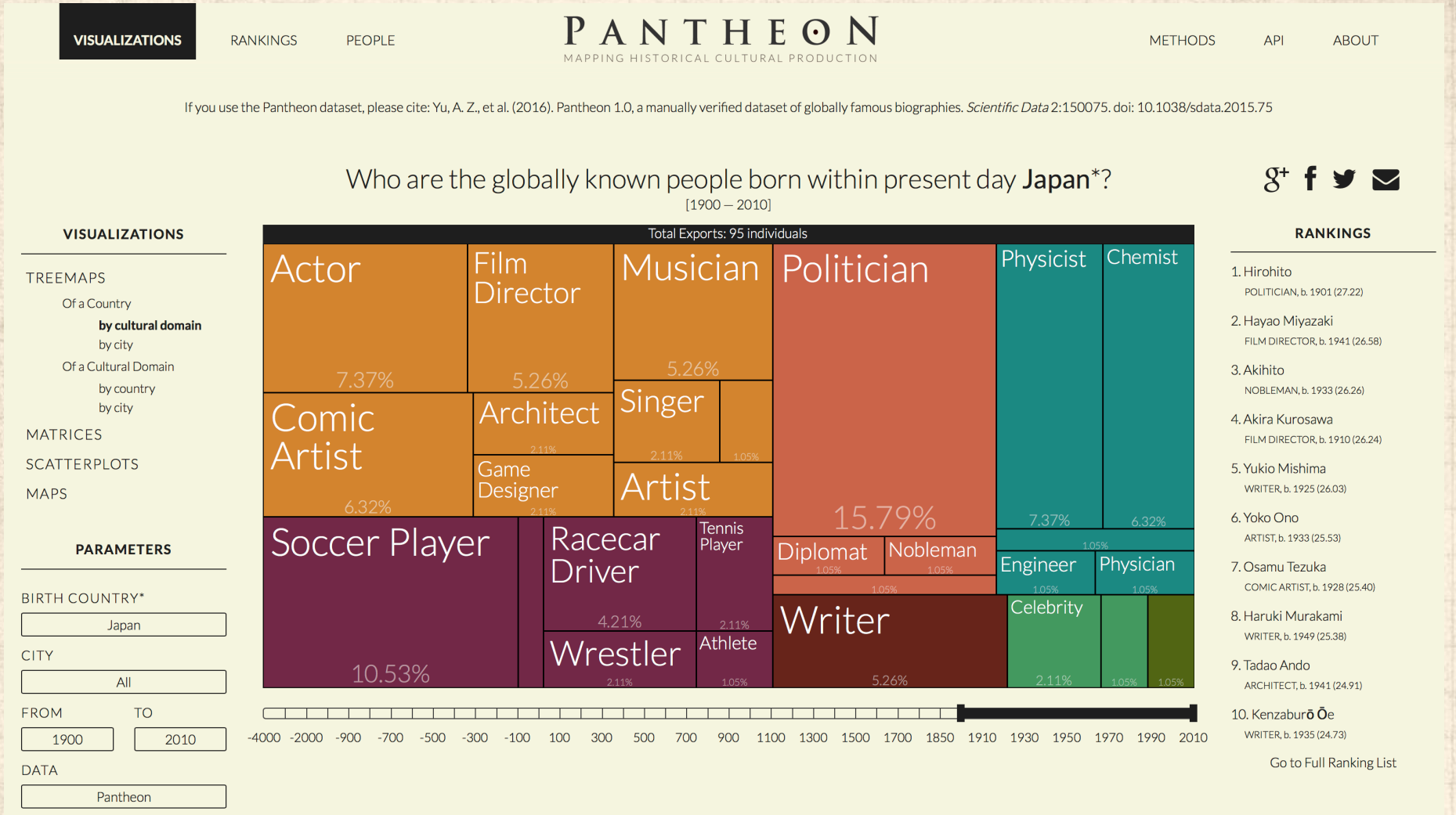
- Religions, ideologies, belief systems, Freemasons, ...
- Enduring coherent groups: Cultures, countries, cities, ...

Cultural products from Pantheon:

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



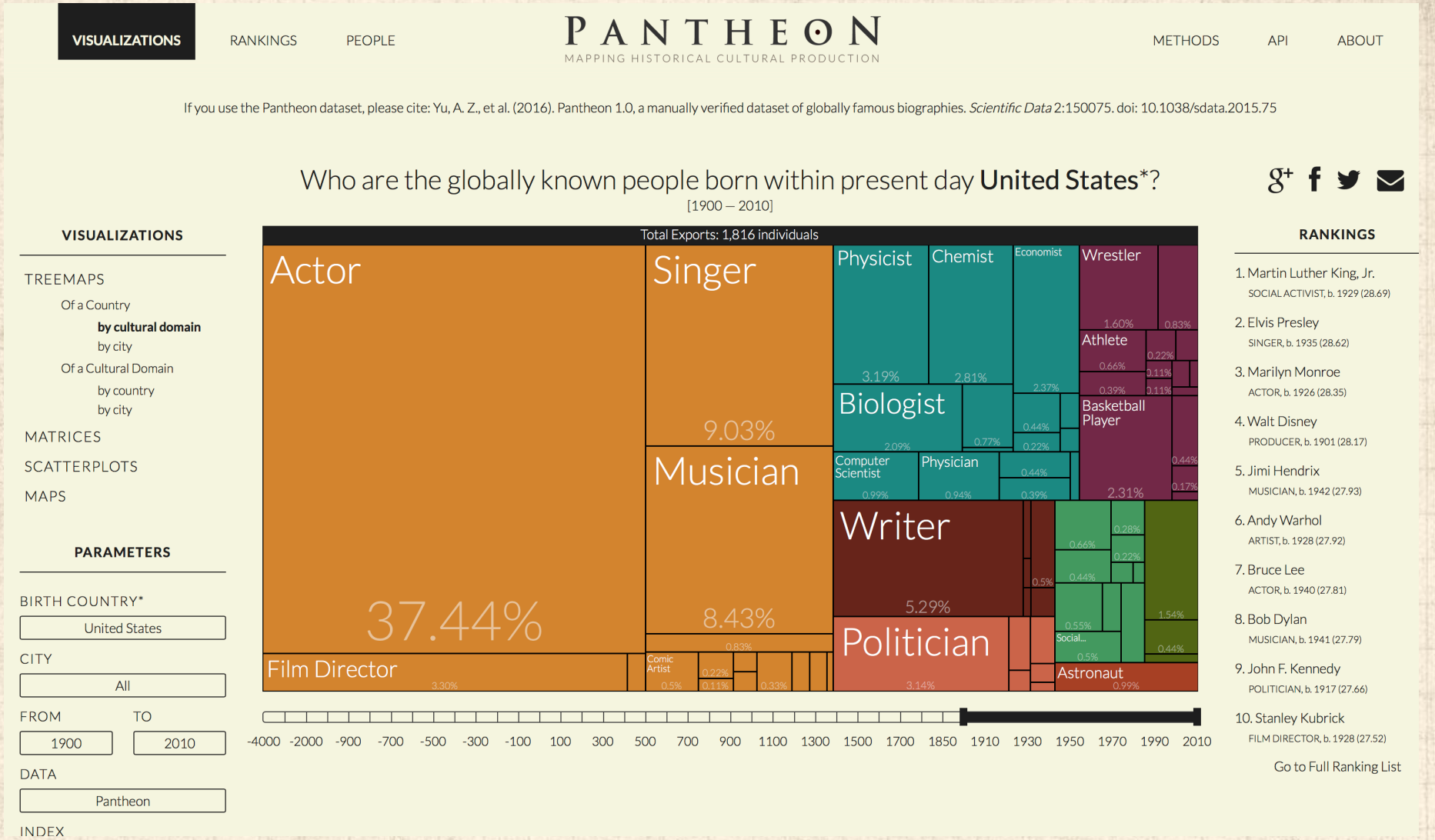
The famous are storytellers—Japan:



For people born 1950–

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

The famous are storytellers—United States:



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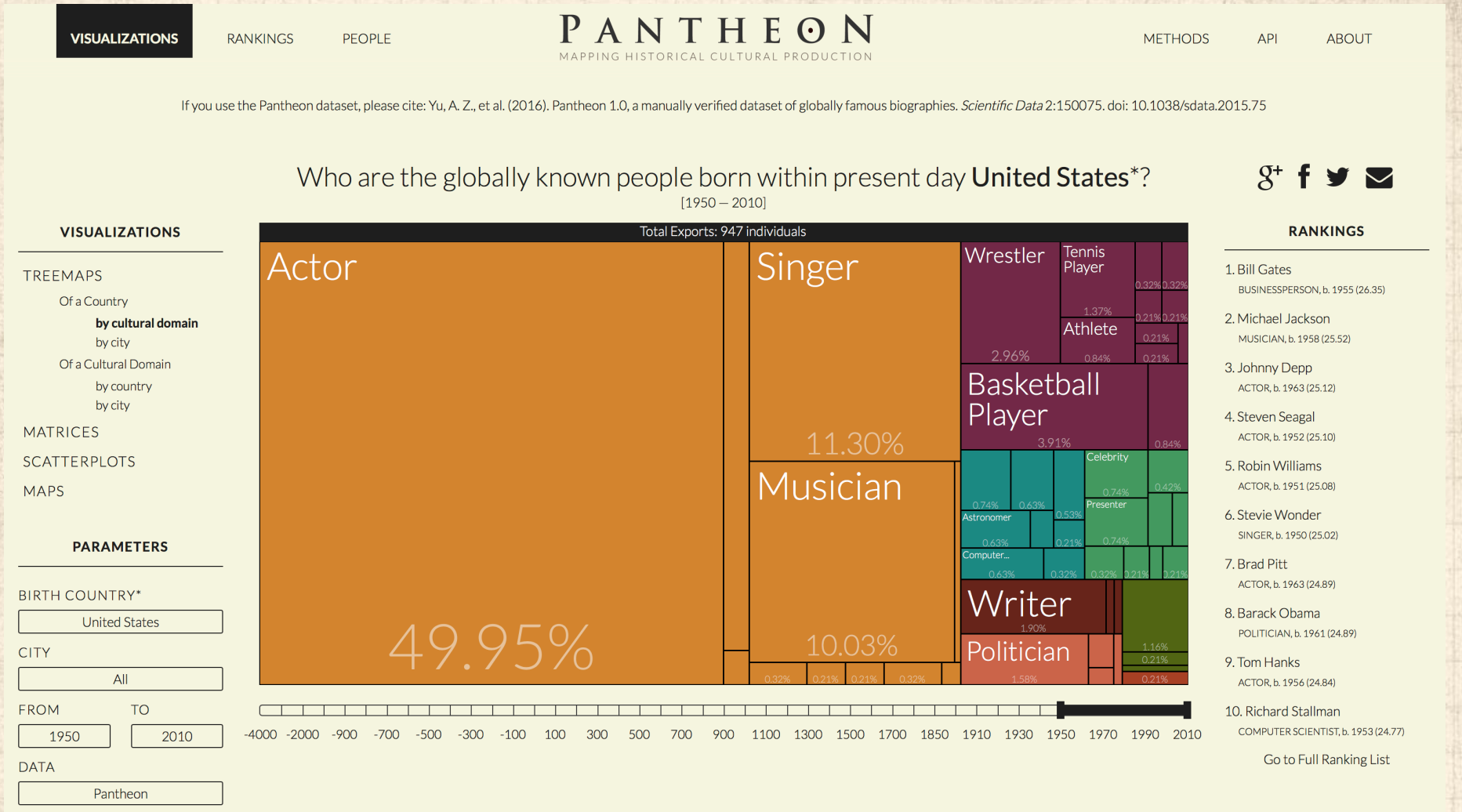

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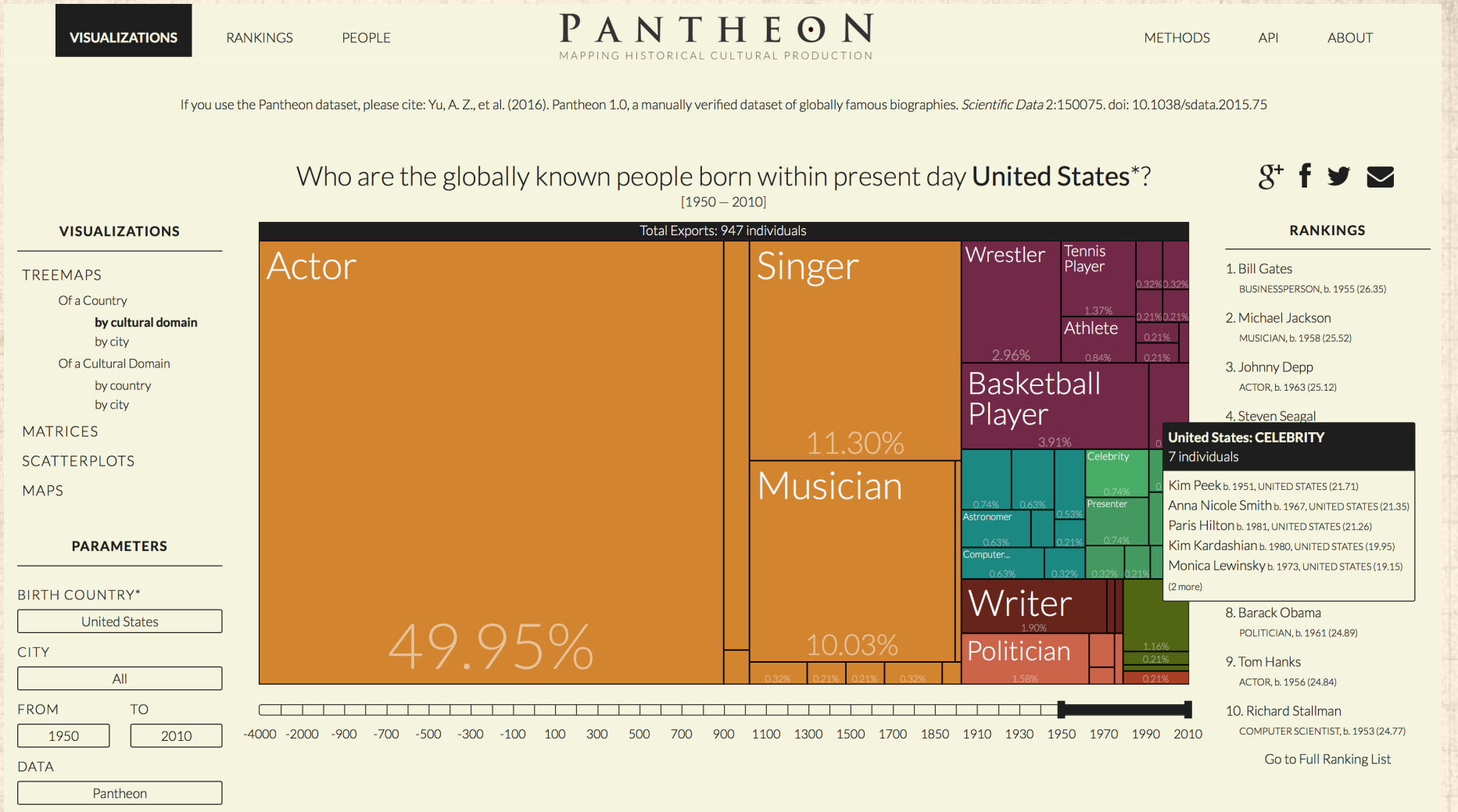

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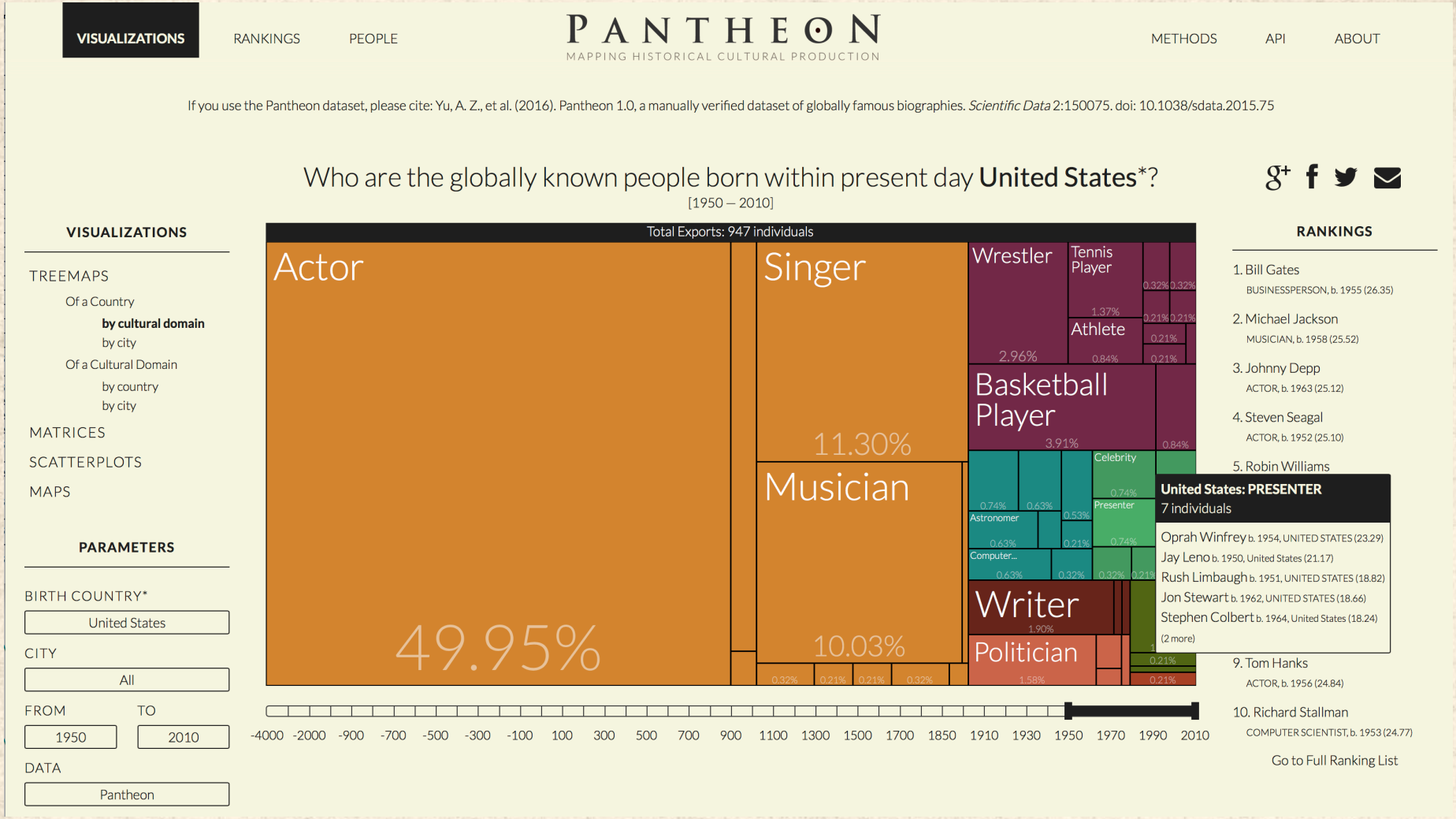

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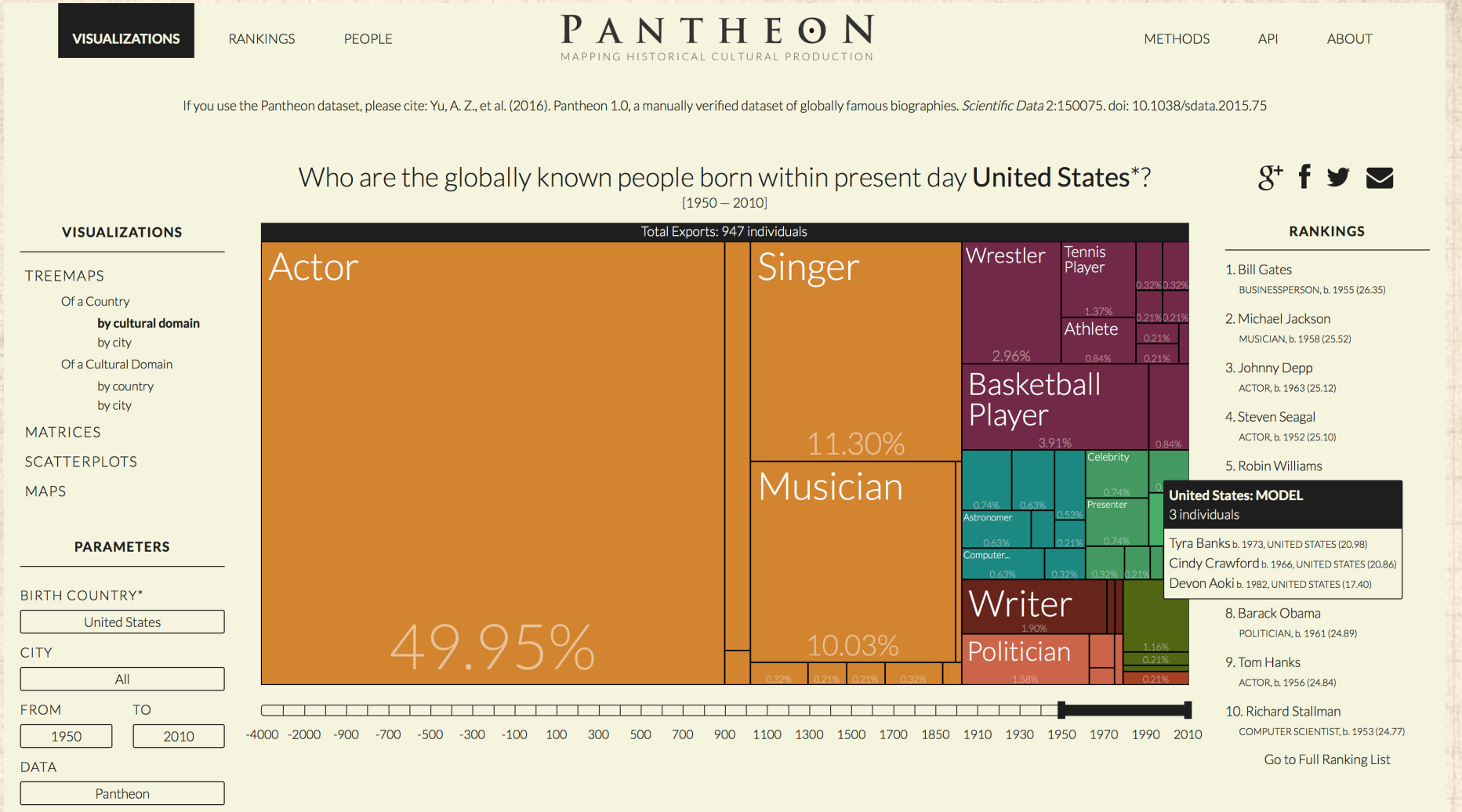

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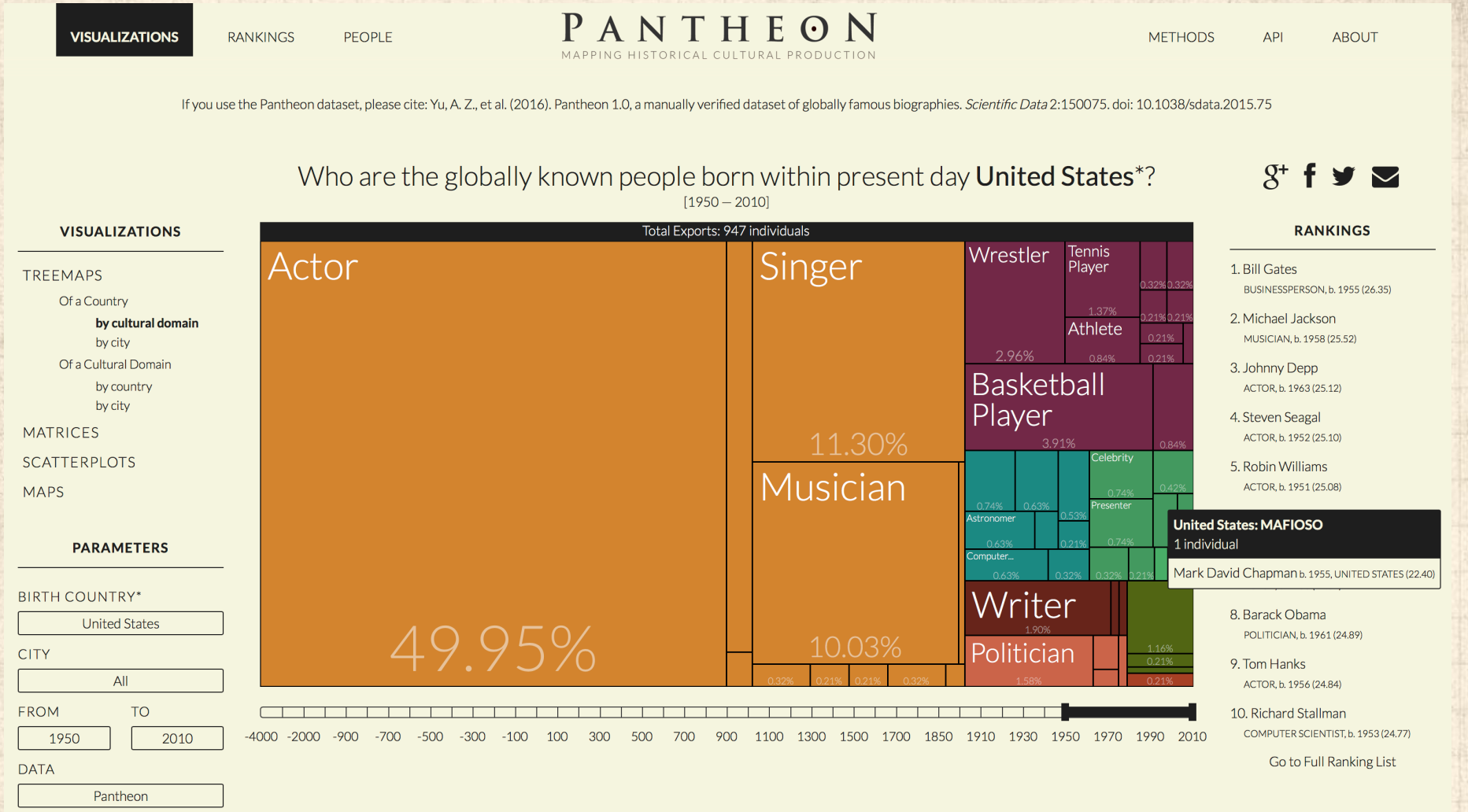

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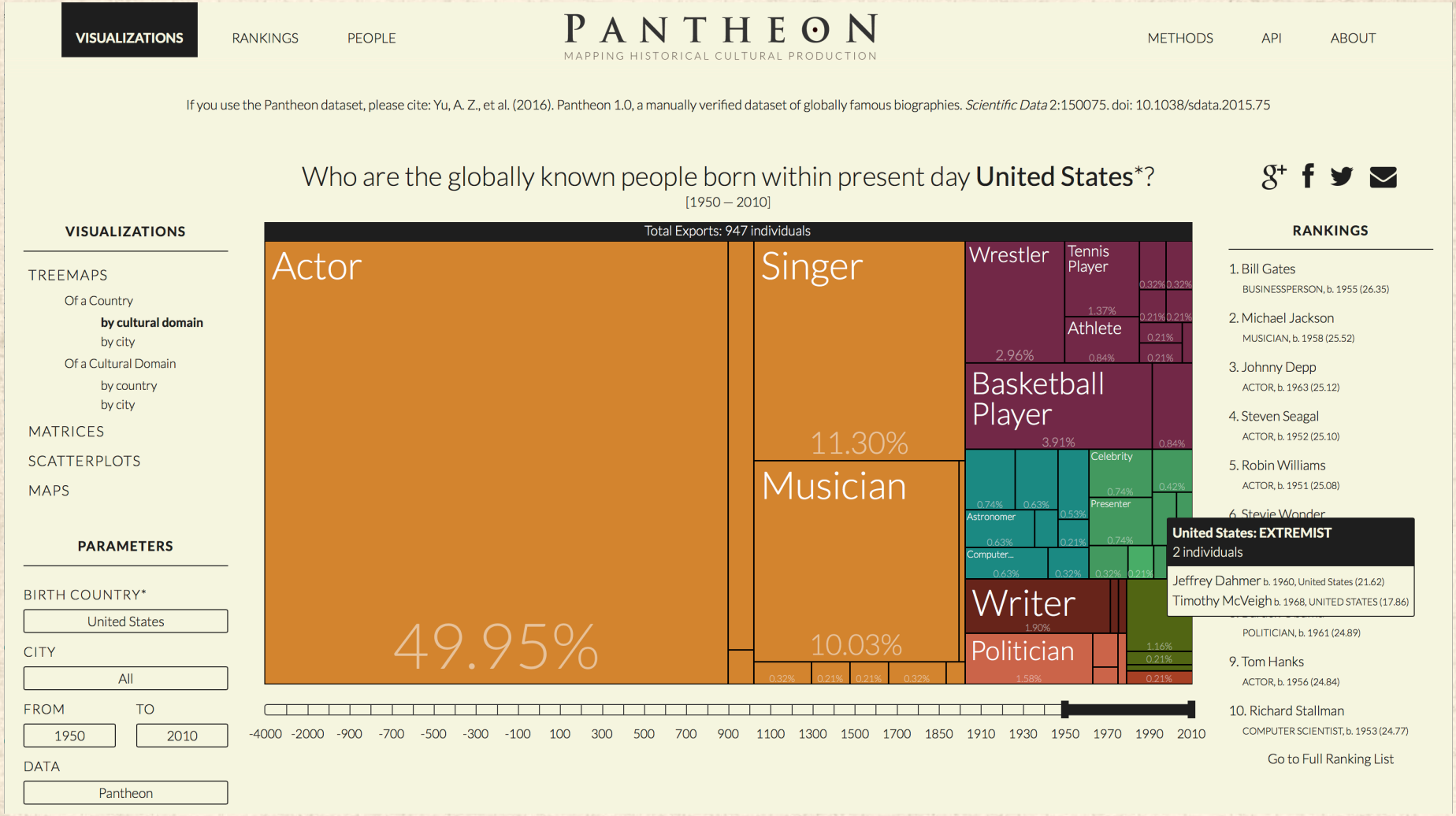

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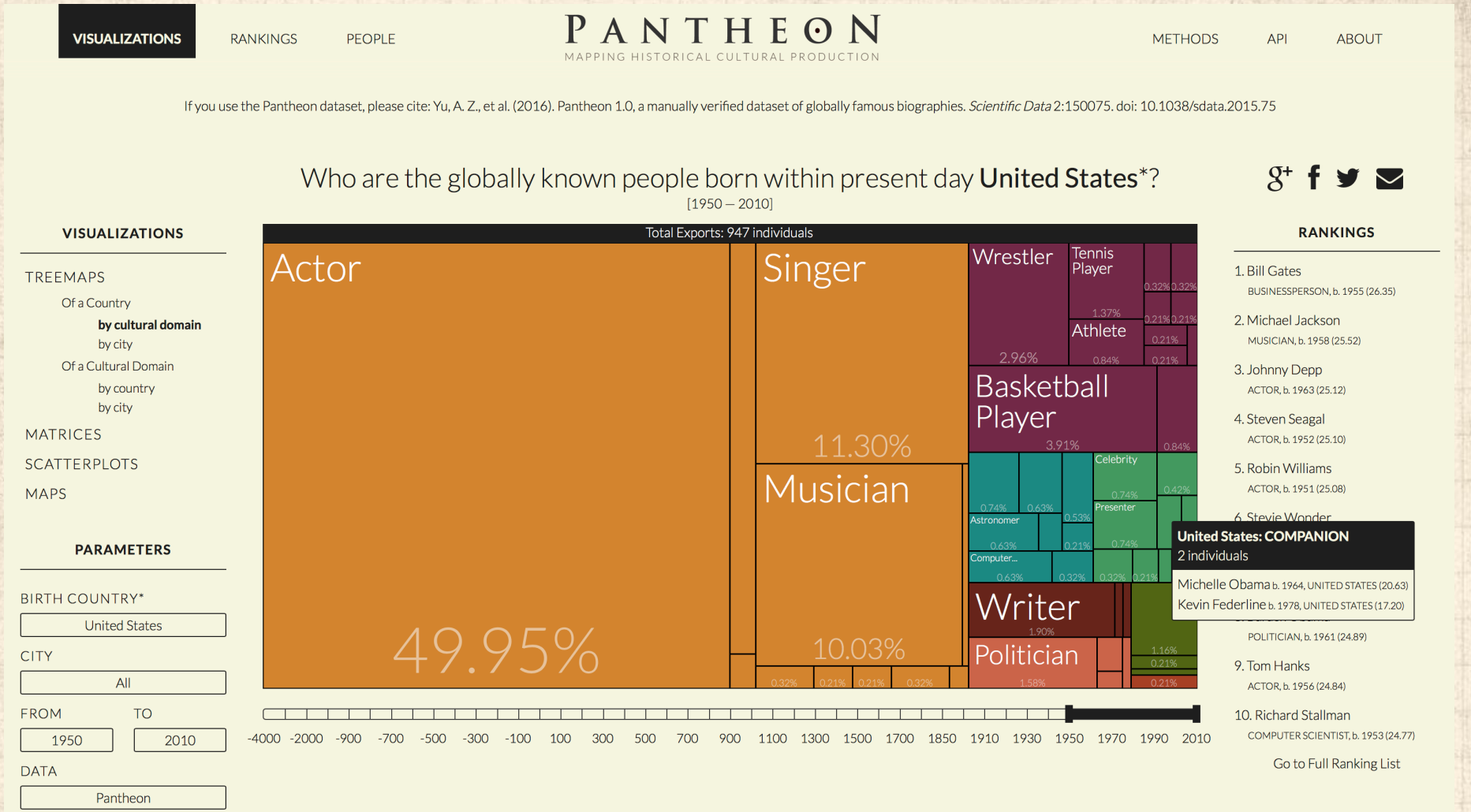

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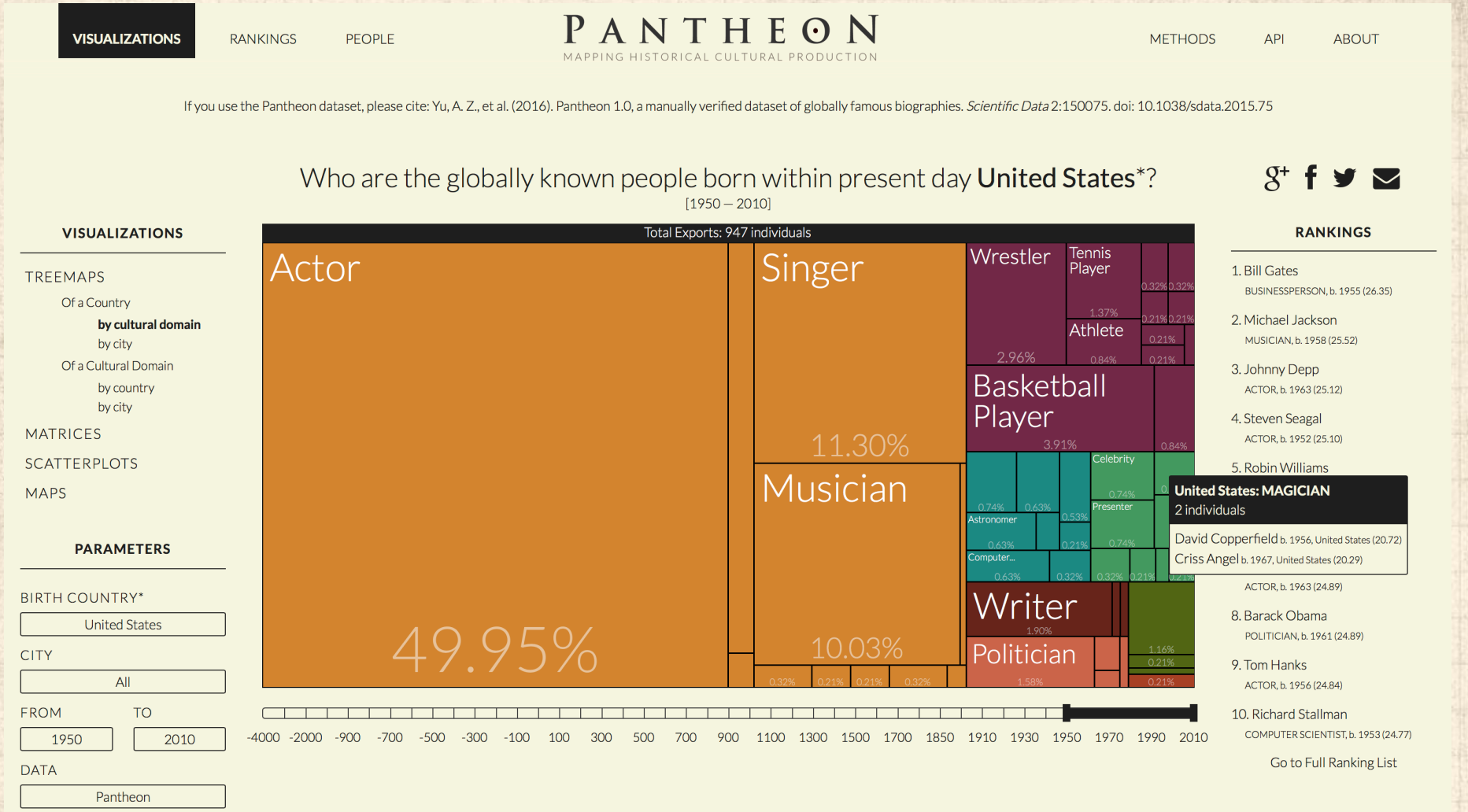

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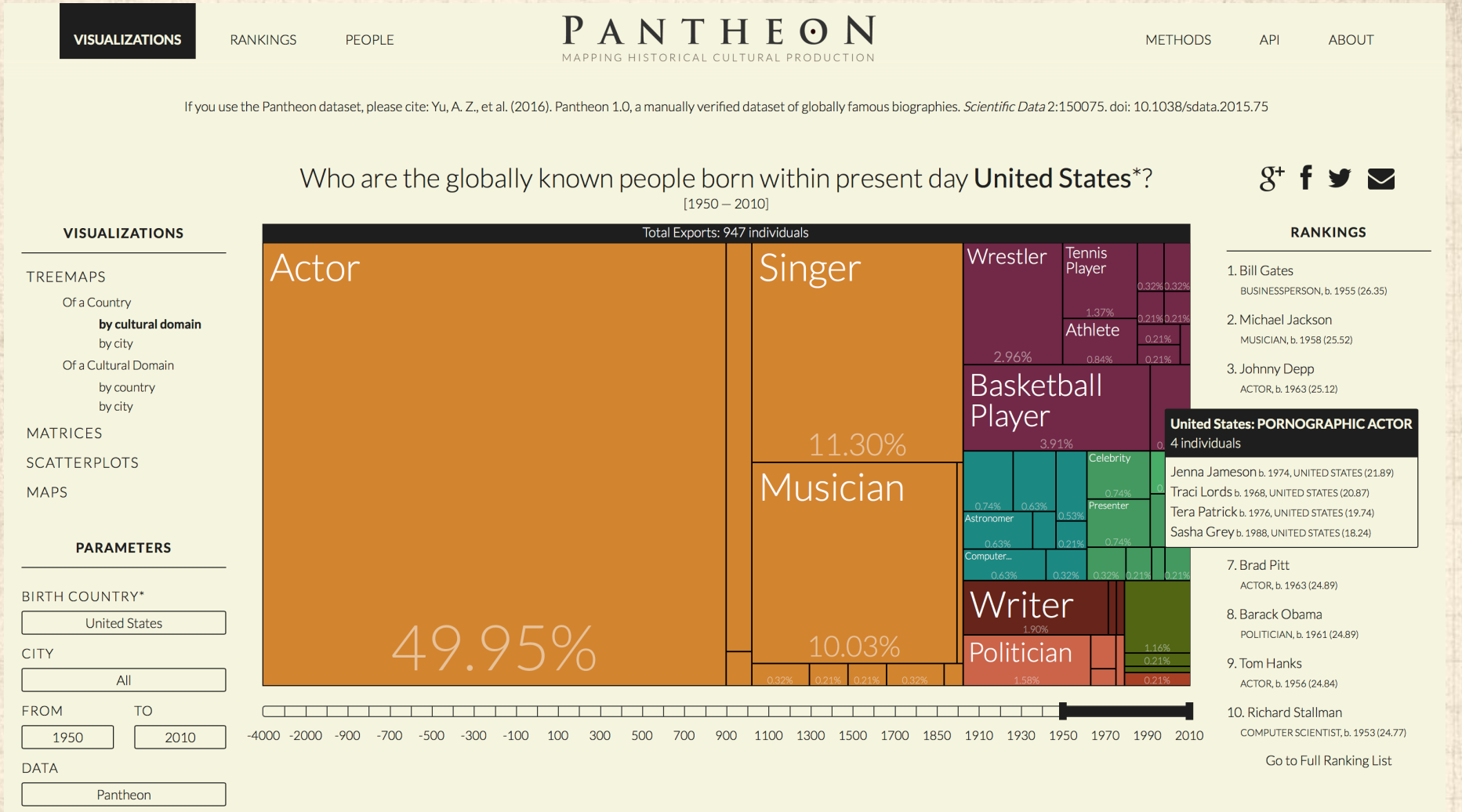

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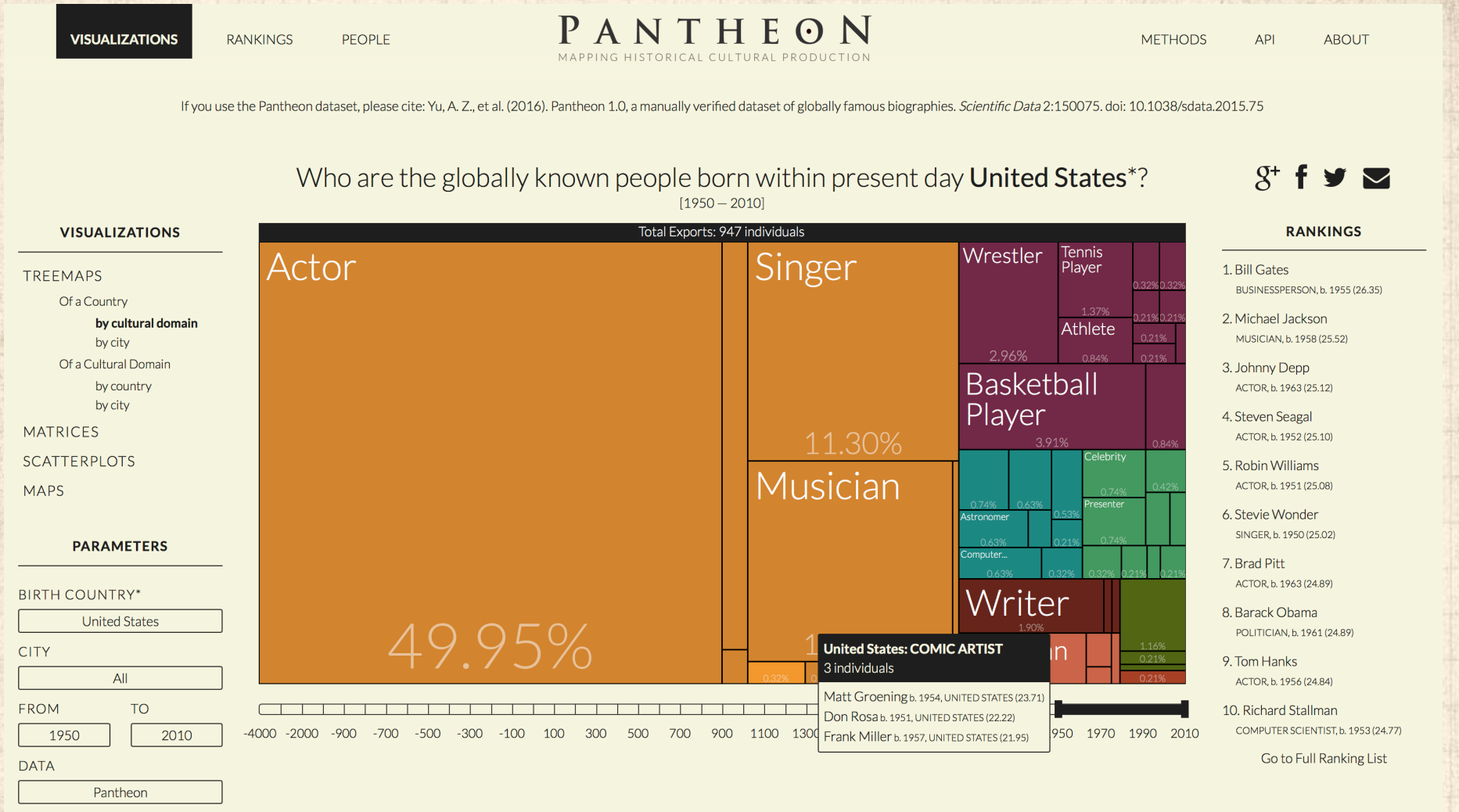

For people born 1950–

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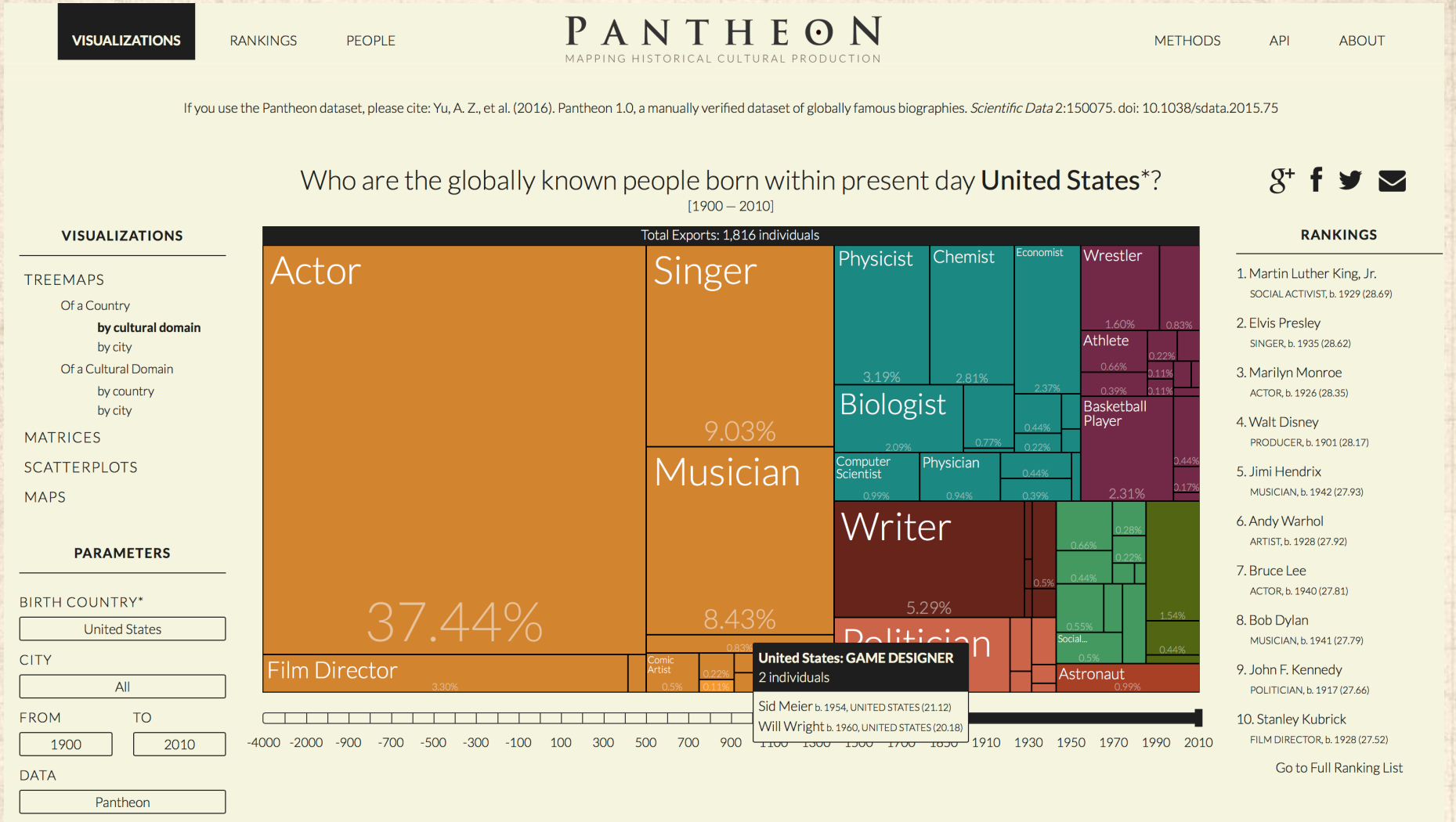
Storytellers win:



For people born 1900–

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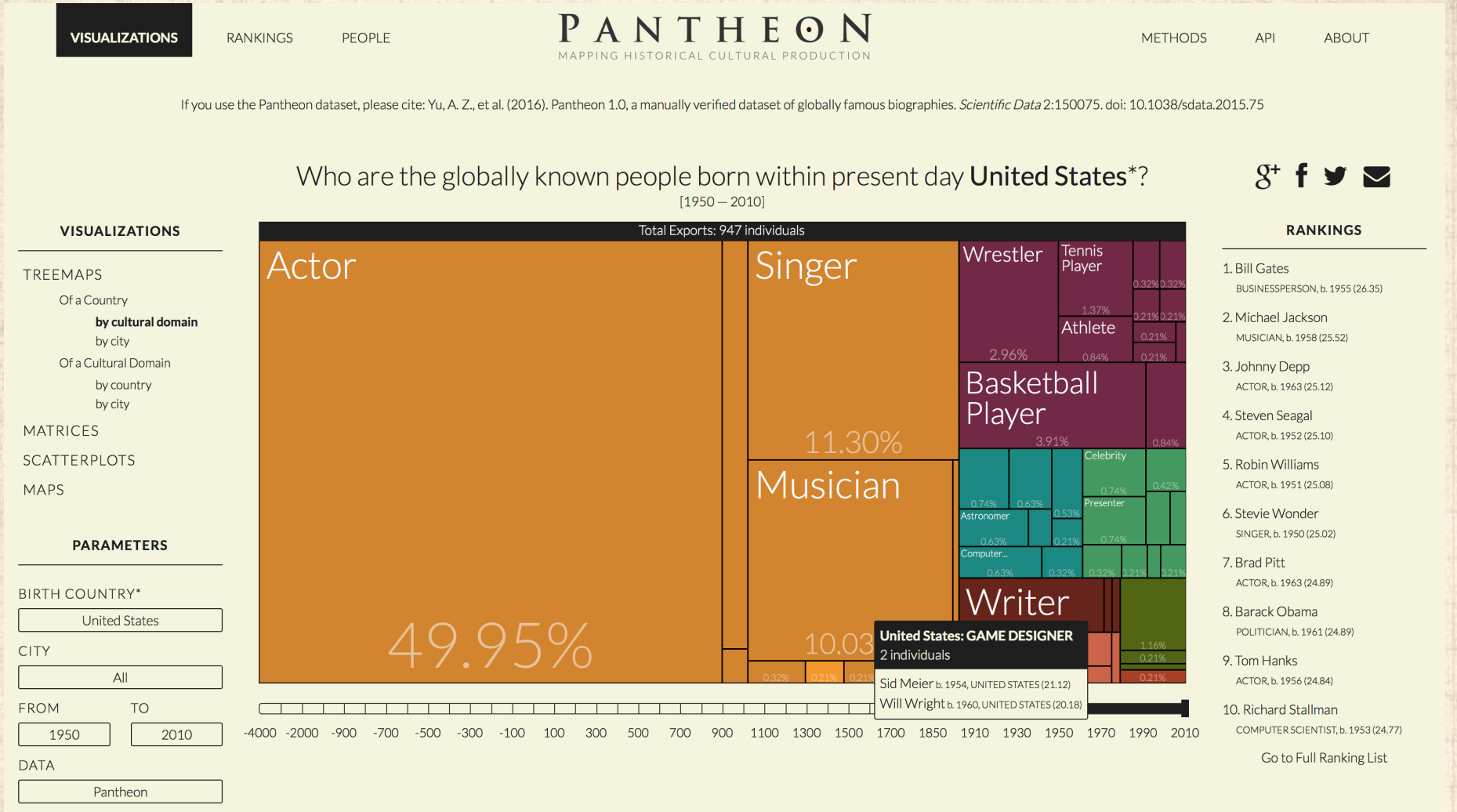
Storytellers win:



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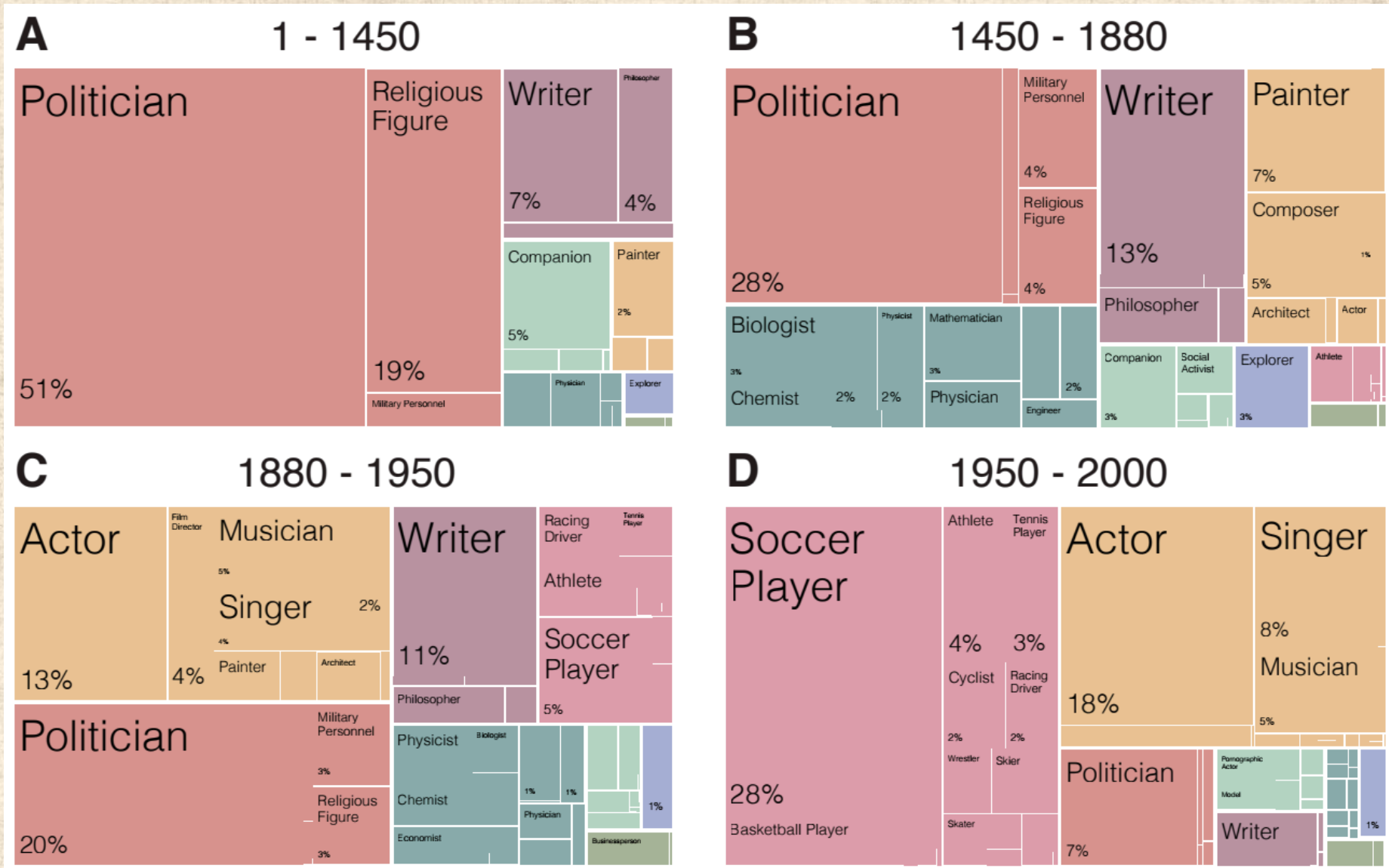
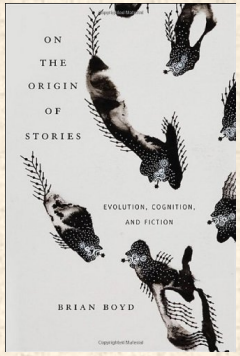
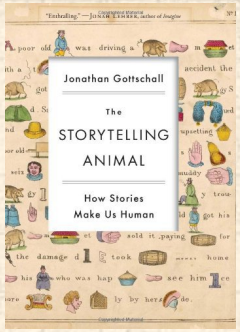


https://www.media.mit.edu/projects/pantheon-new/overview/

It’s all about algorithms (stories):

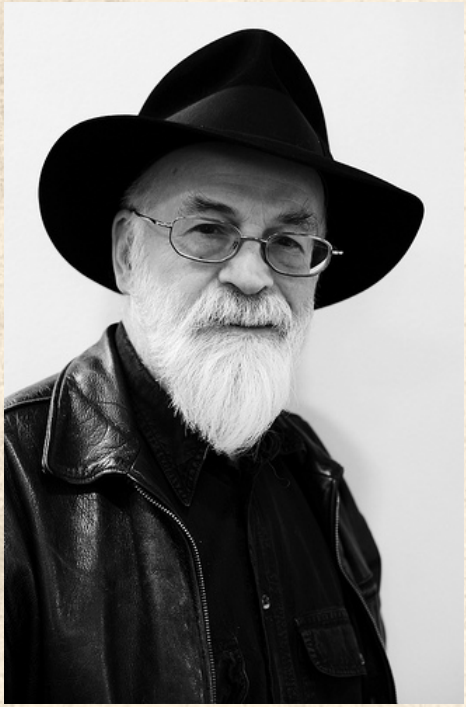


“On the Origin of Stories: Evolution, Cognition, and Fiction”
by Brian Boyd (2010). [4]



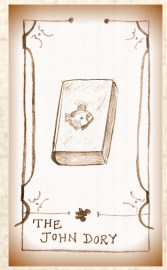
“The Storytelling Animal: How Stories Make Us Human”
by Jonathan Gottschall (2013). [12]

(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
Emotional Arcs
Moving ahead
References

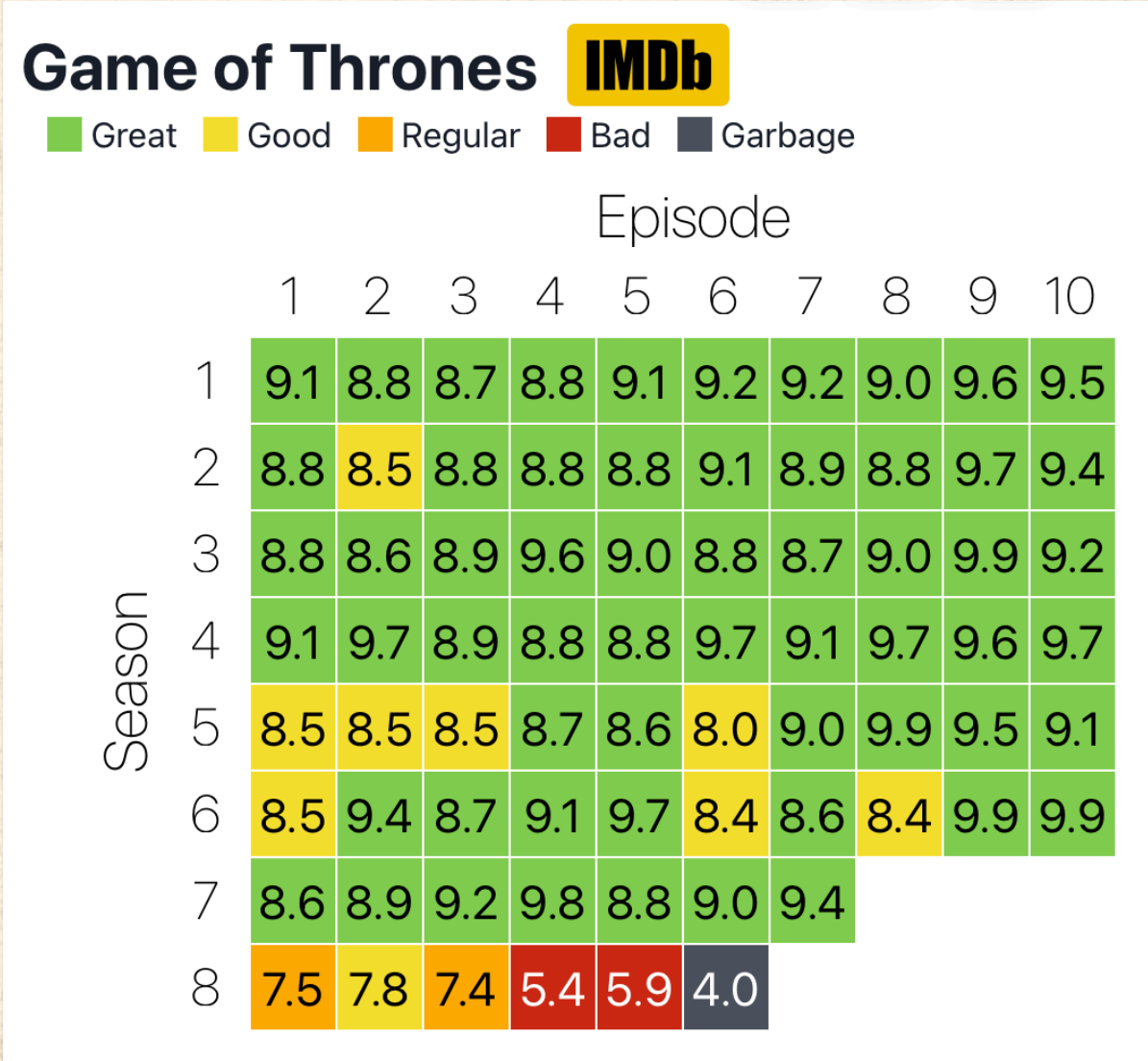
Stories are everything

Full torturous scene is here

Game of Thrones, S6E06: The Iron Throne

"What unites people? Armies? Gold? Flags? Stories. There's nothing in the world more powerful than a good story.
Nothing can stop it.
No enemy can defeat it."

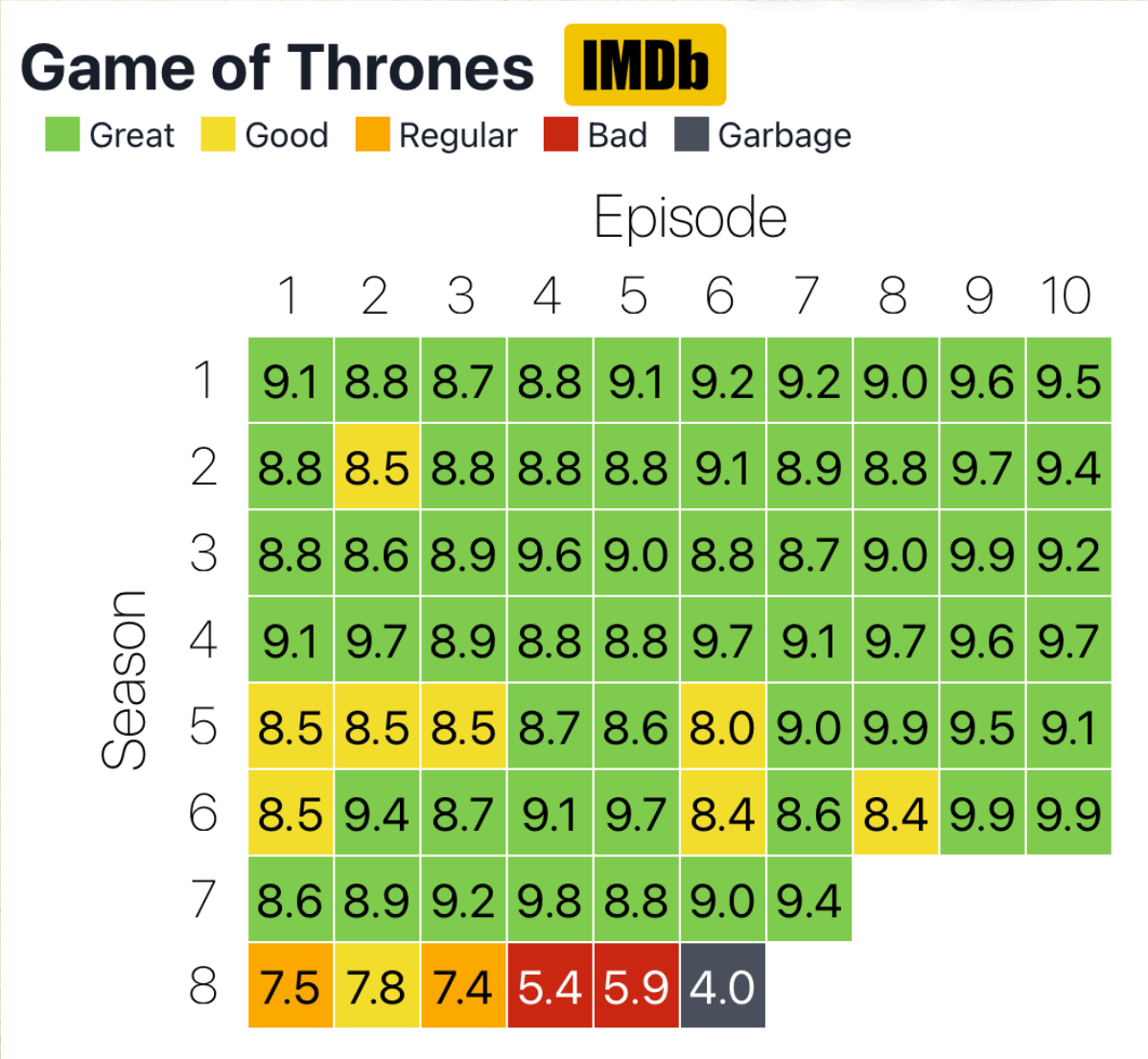
Stories are the essence of … oh no, no, no …



Series Heat for GoT

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

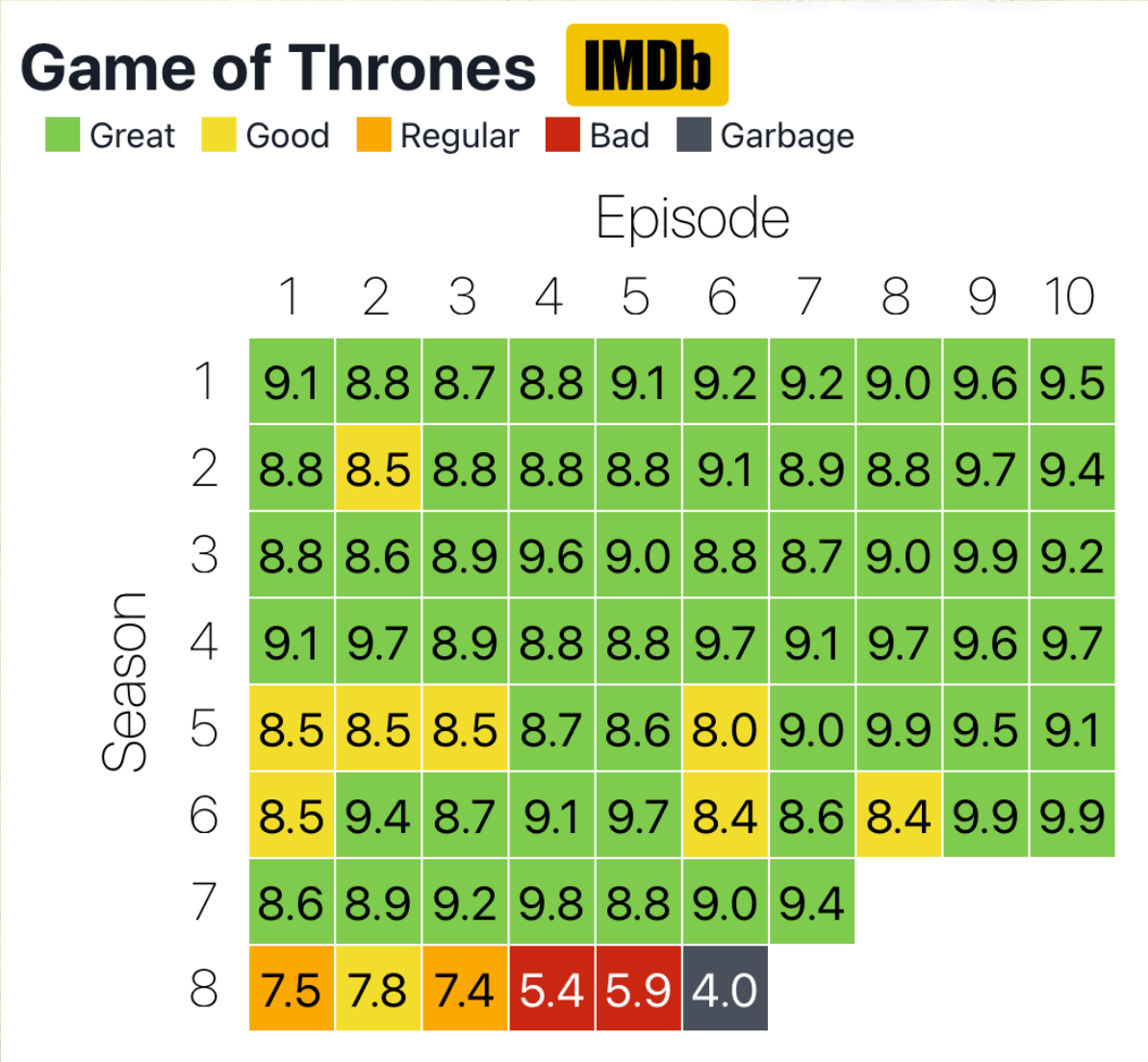
- Except for writers who destroy their own stories.



Series Heat for GoT

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

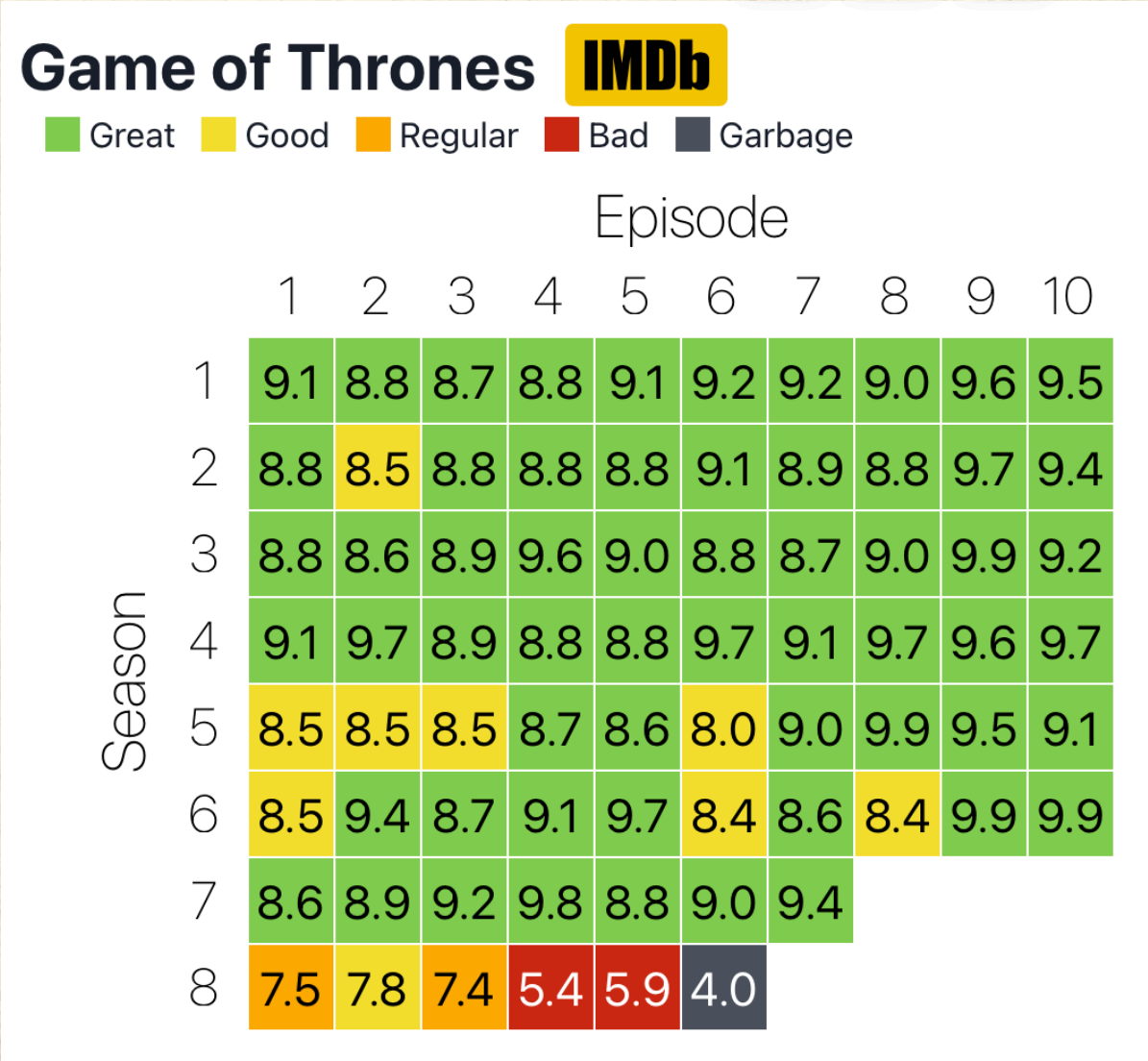
- Except for writers who destroy their own stories.
- Also audiences.



Series Heat for GoT

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

- Except for writers who destroy their own stories.
- Also audiences.
- Basic word of mouth.



Series Heat for GoT

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

- Except for writers who destroy their own stories.
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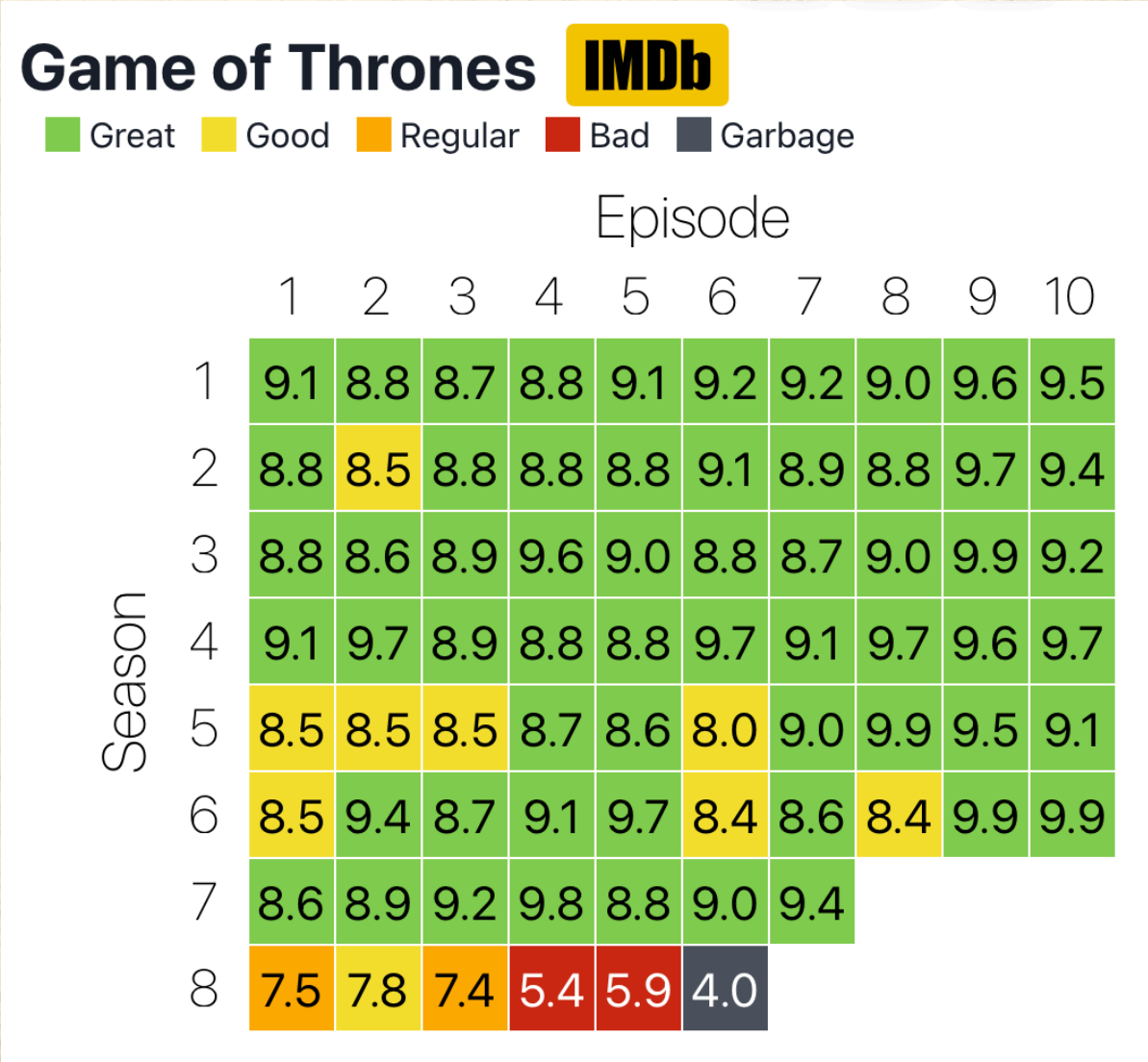

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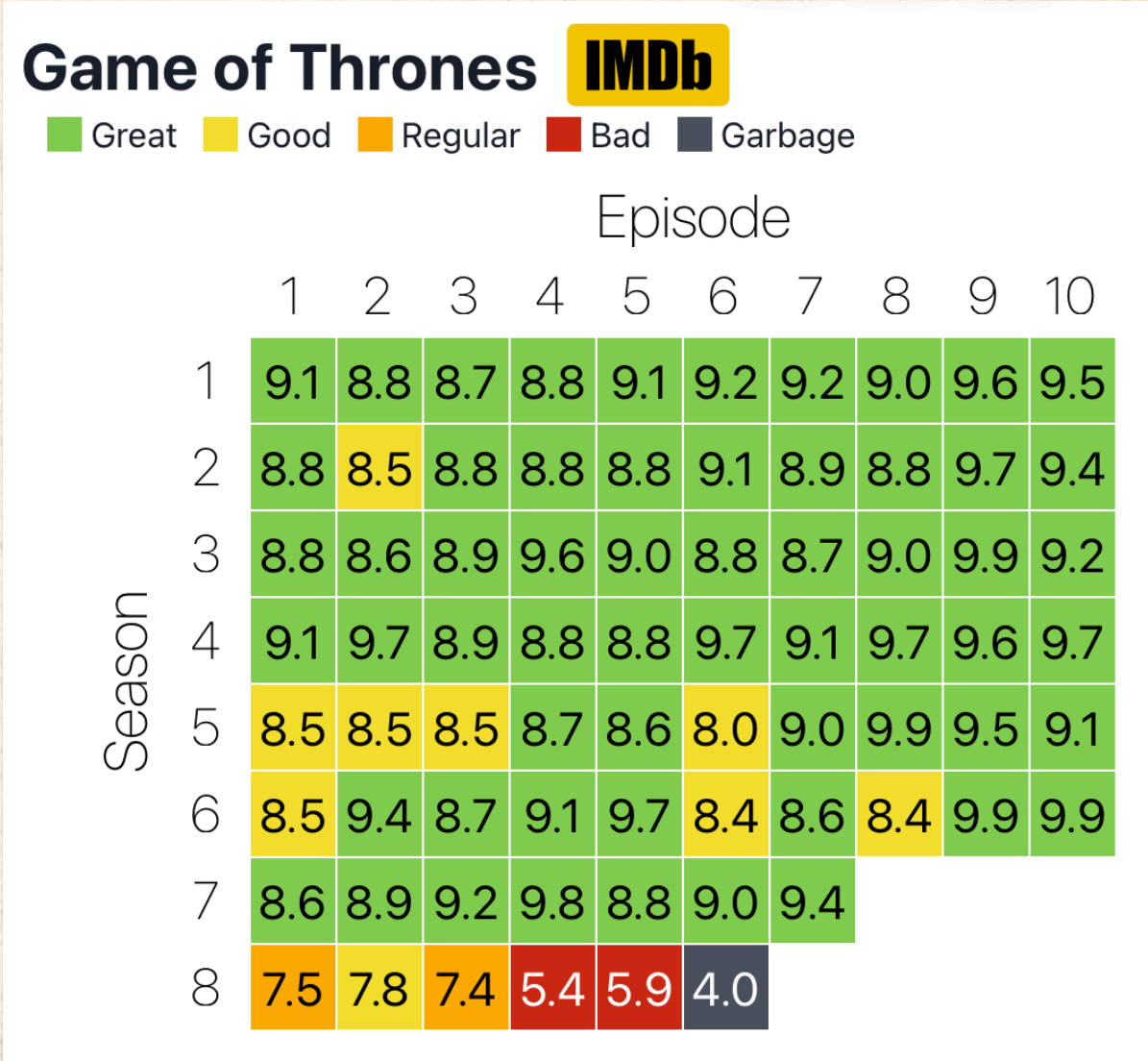

Series Heat for GoT

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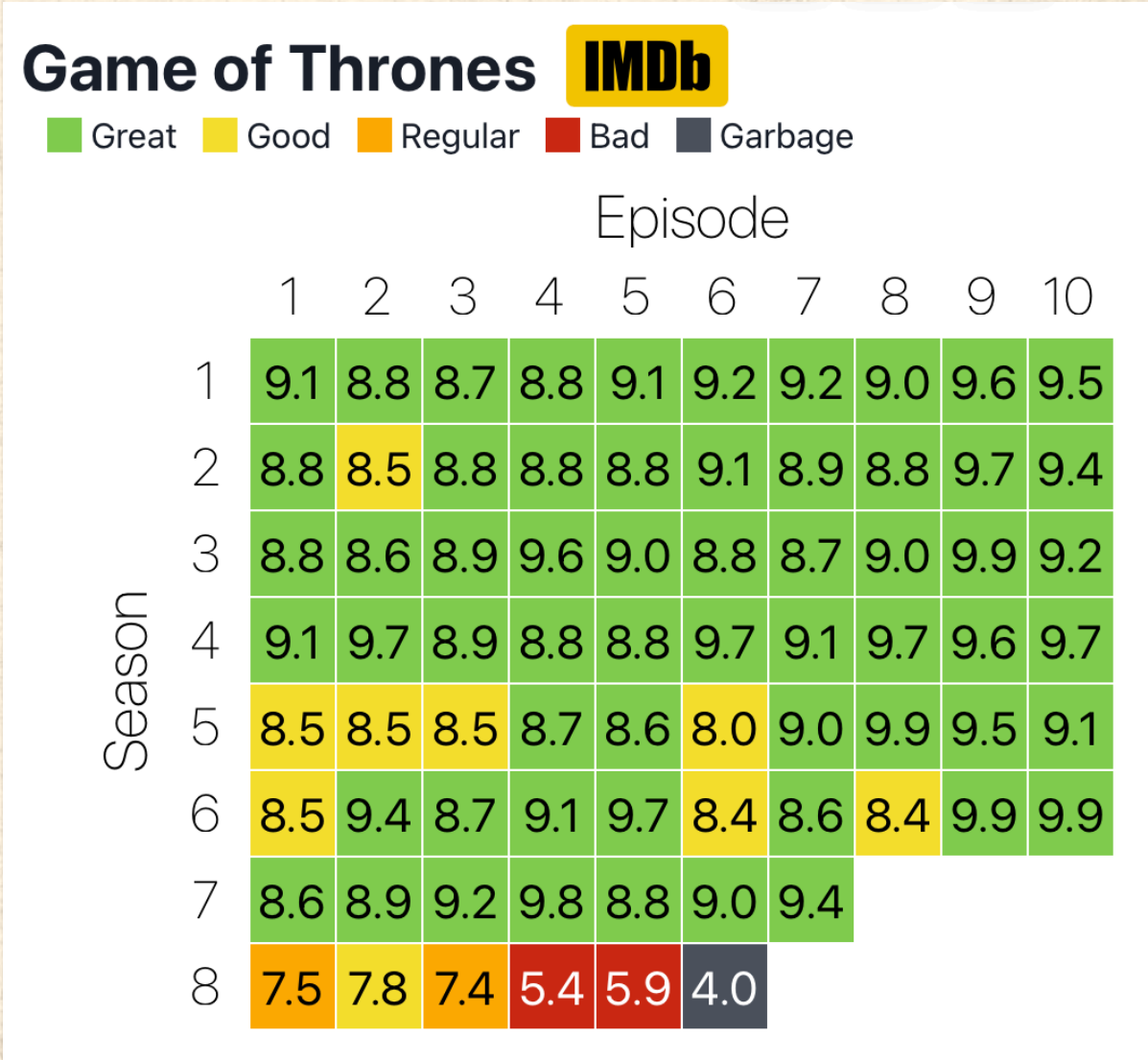
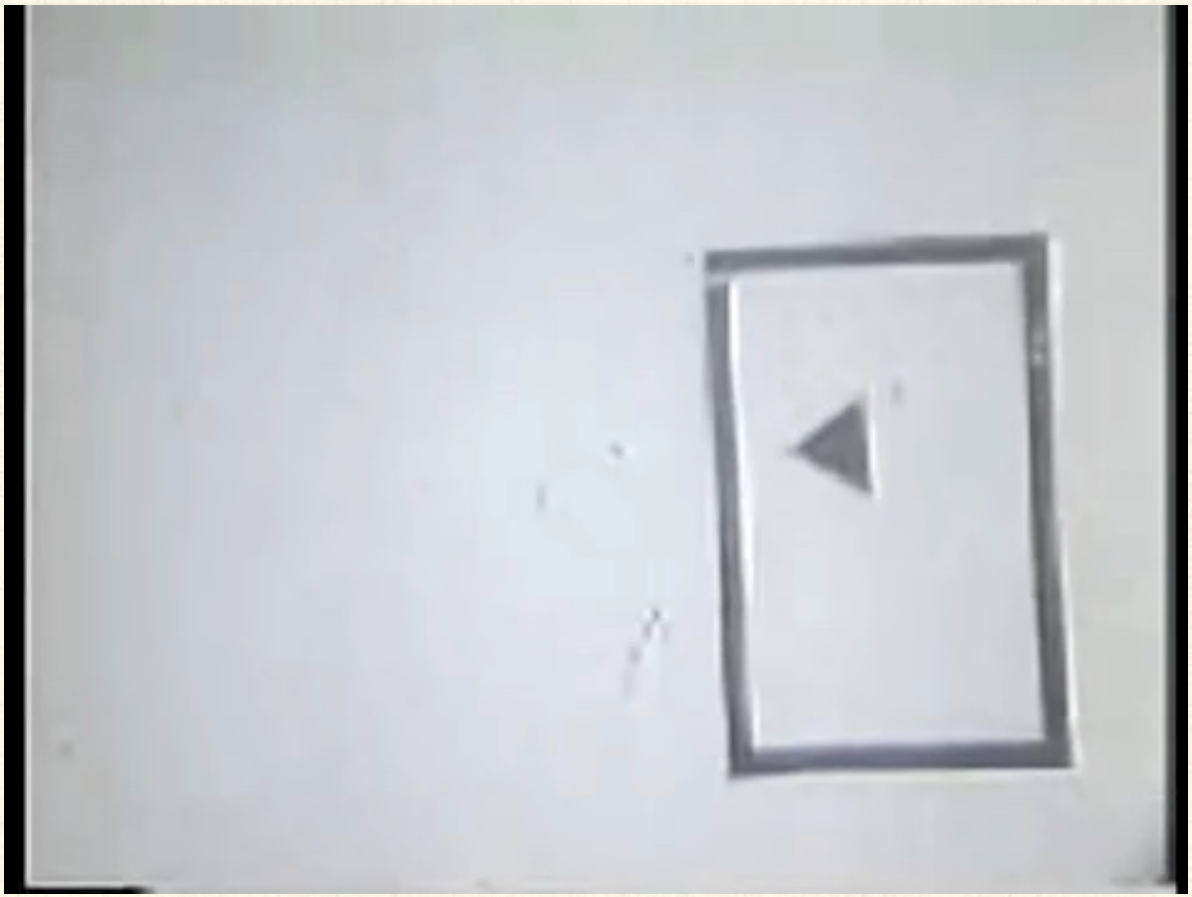
- Character assassination works too.

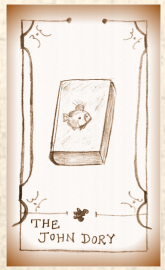


Series Heat for GoT

We see (certain kinds of) stories



Heider and Simmel, 1944 [13], Source



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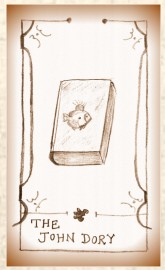

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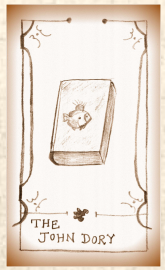
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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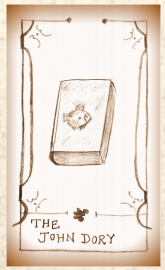
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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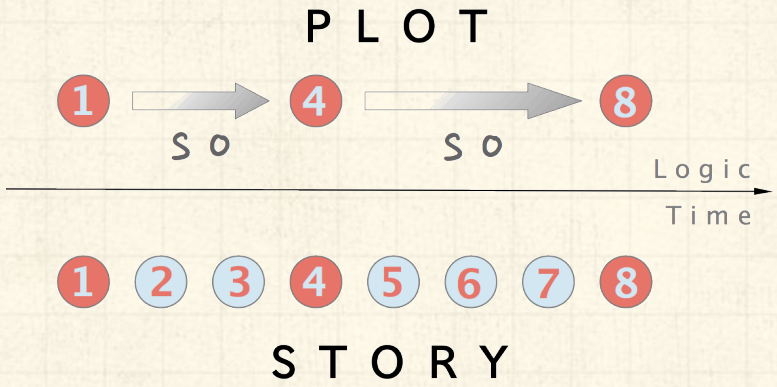

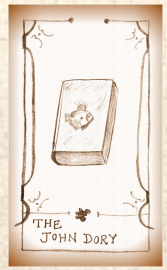

[1] By まとりょ🄵しか — Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=24054522

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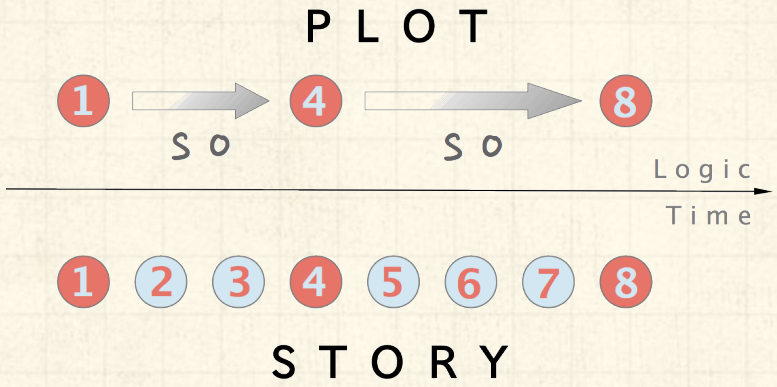

- Plot = Algorithm

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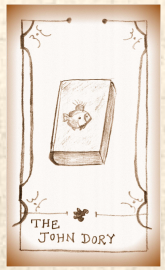

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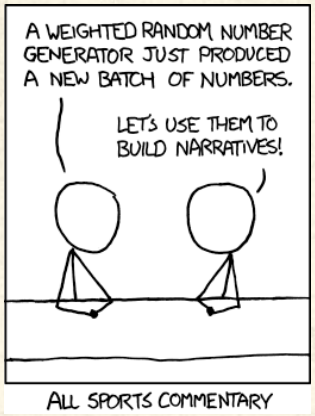

xkcd.com/904/

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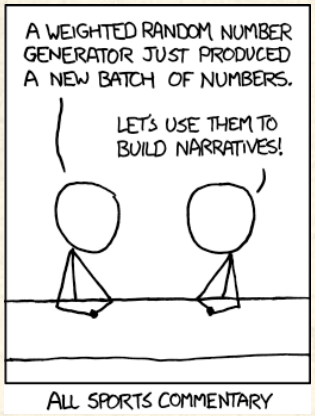

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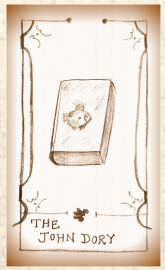

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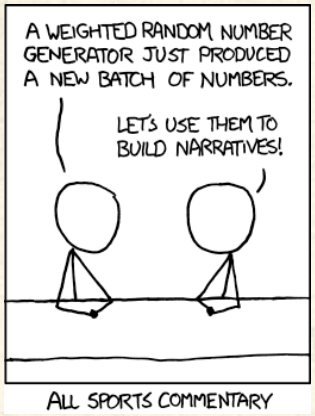

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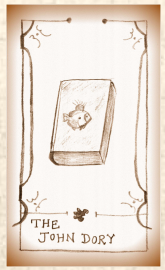
The PoCSverse
What's the Story?
22 of 85
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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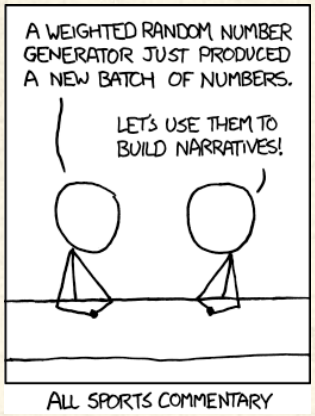

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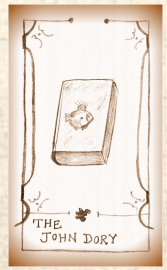
The PoCSverse
What's the Story?
22 of 85
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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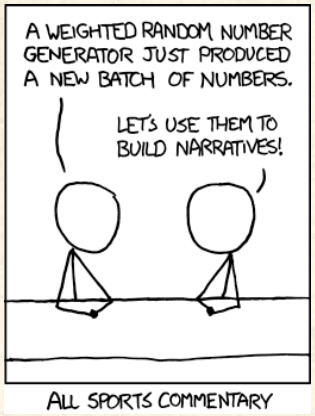

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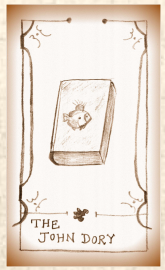
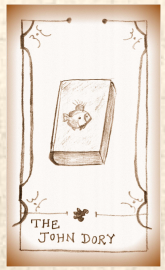
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

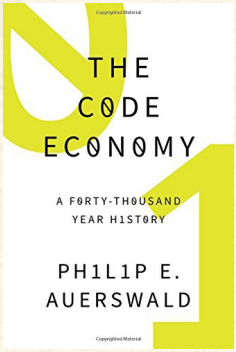


Algorithms are everywhere:

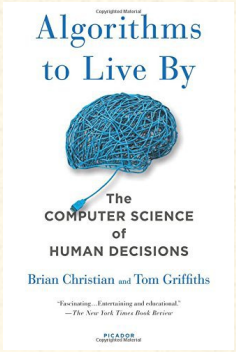
- Communication/Language.
- Economic systems
  (Shiller: "Narrative Economics" [20])
- Legal systems.
- Social norms, customs, cultures.
- Food:
  growing, harvesting, preparing, distribution, ...
- Safety codes and protocols
- Military.
- Stories ...



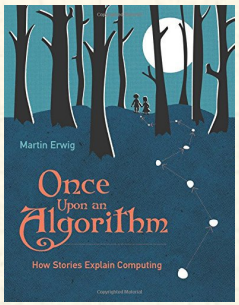
Algorithms, recipes, stories, ...



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

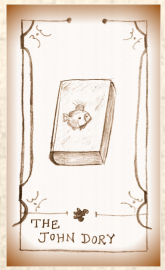


"Algorithms to Live By"
by Christian and Griffiths (2016). [8]



"Once Upon an Algorithm"
by Martin Erwig (2017). [11]

Also: Numerical Recipes in C [17] and How to Bake π [7]



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
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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
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THE THEORY OF SIX DEGREES
THE NETWORKS FREE OF SCALE
THE CONTAGION
THE CONFUSION OF CONTAGIONS
THE DISEASE OF RANDOM MIXING
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THE TRUTHICIDE
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THE OVERCOMING OF CATASTROPHE
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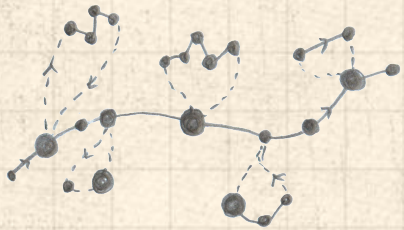
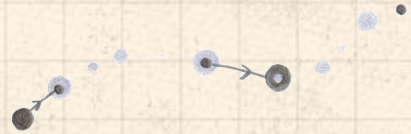
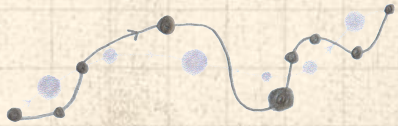
THE END

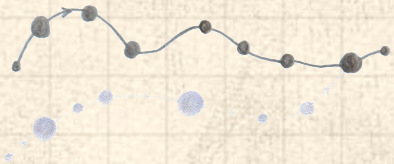
THE ADJACENT NARRATIVES

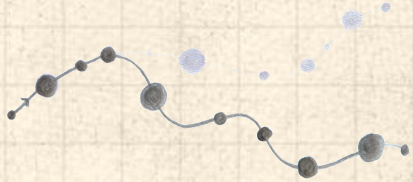
Adjacent narratives—why mistruths and conspiracy theories exist and flourish:

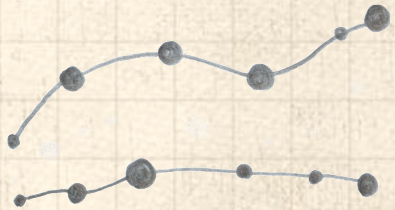


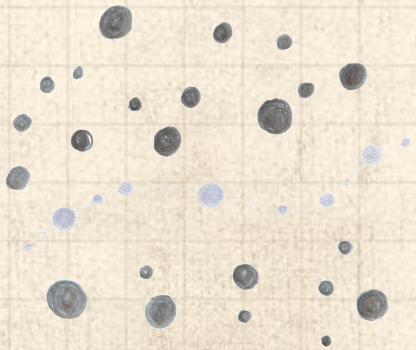












Storytellers

Stories

Power

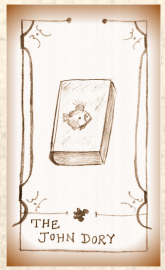
Taxonomy

Essence

Emotional Arcs

Moving ahead

References



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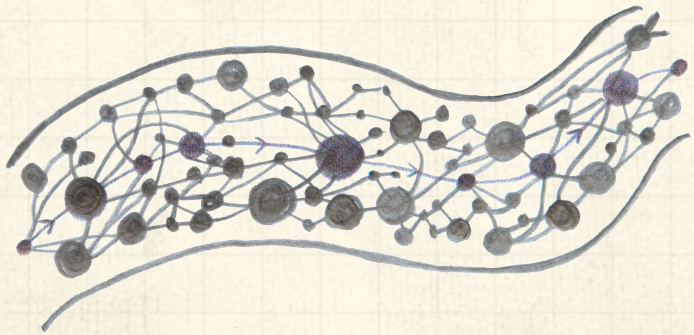
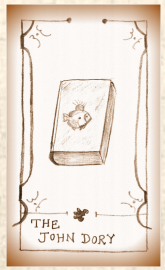
1/4. A real story is never recorded and retold completely





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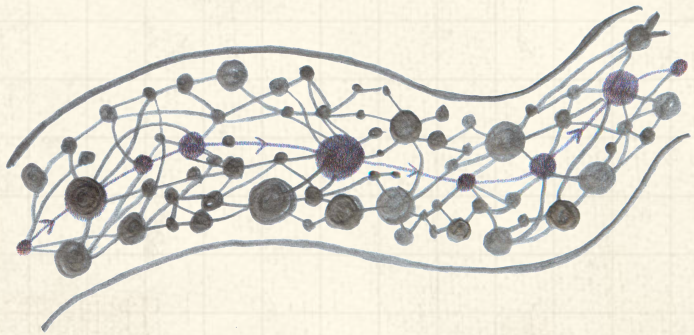

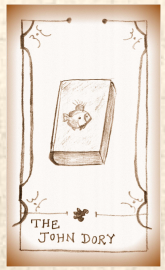

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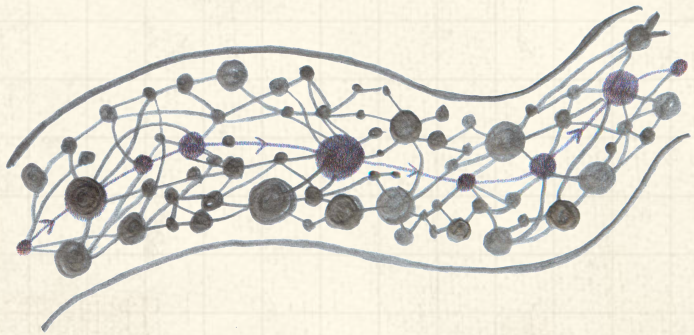

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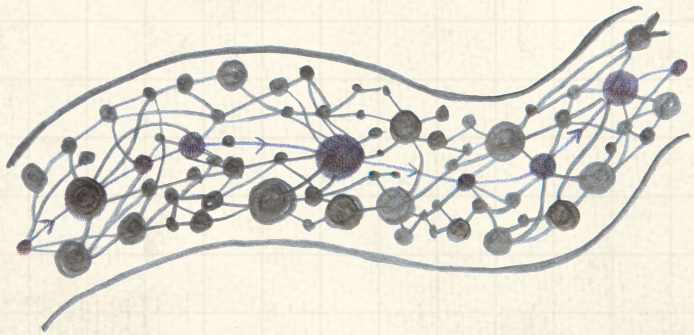

Why adjacent narratives exist and untrue stories flourish:

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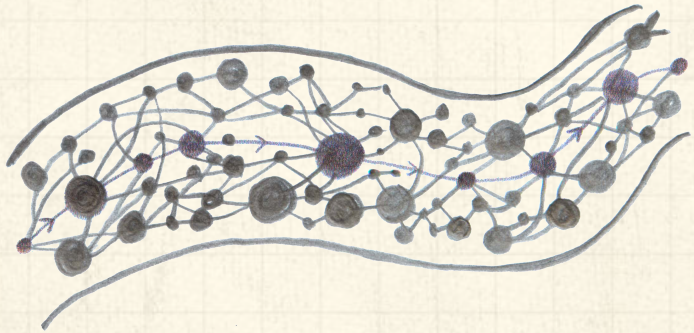

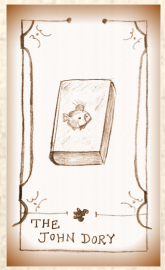

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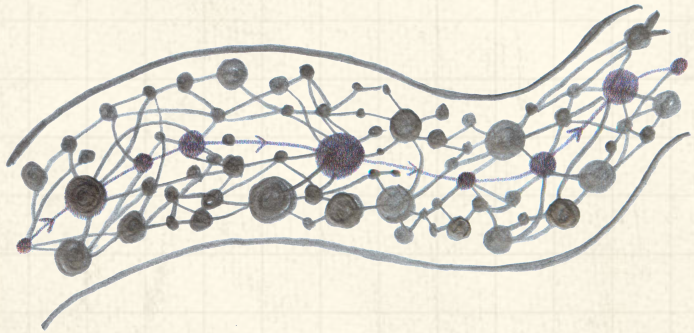

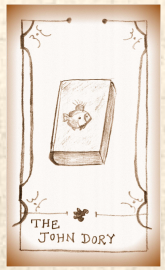

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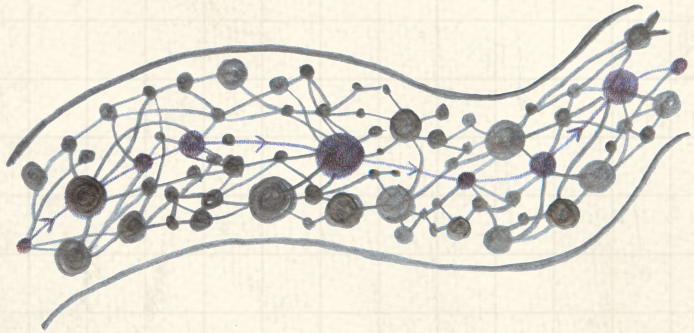
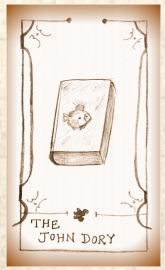
- Better stories exist for truthful recorders and retellers (journalists).





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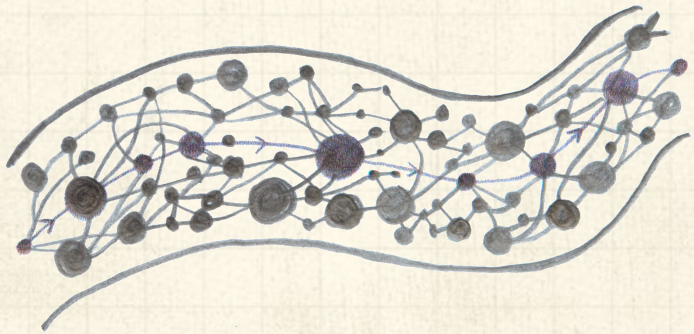

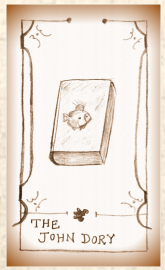

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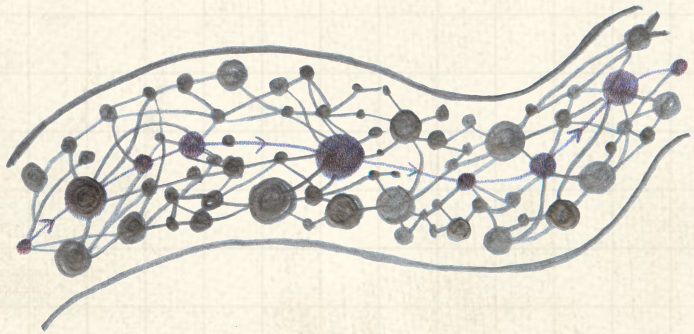

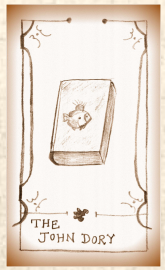

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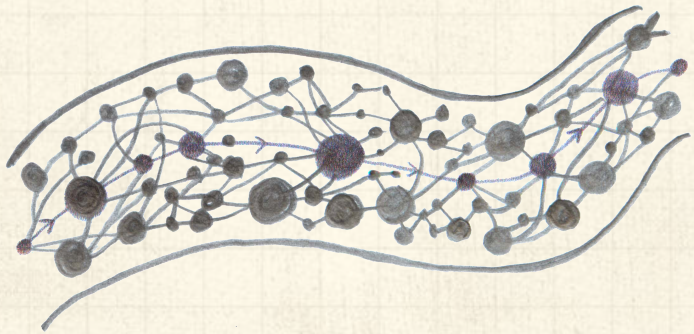

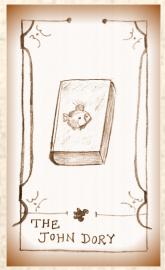

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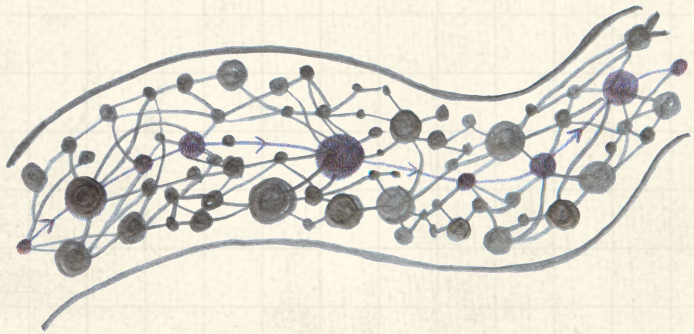
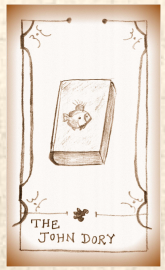
- Even the seemingly non-adjacent must have some plausibility (Pizzagate).





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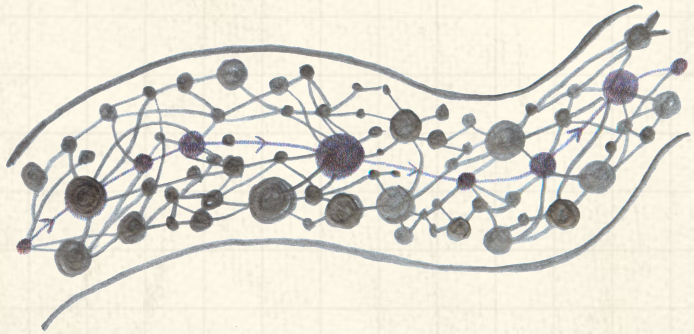

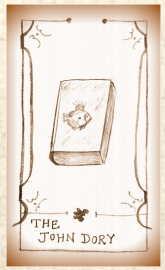

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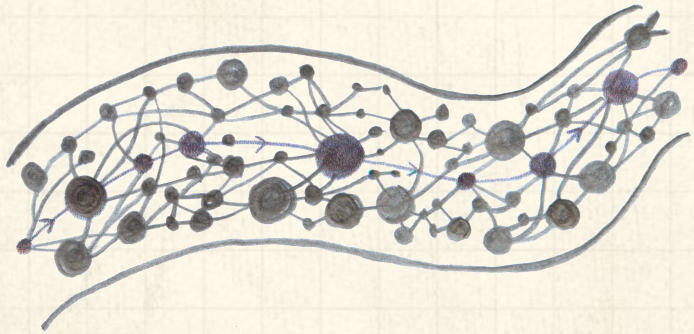

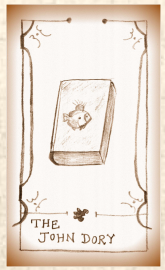

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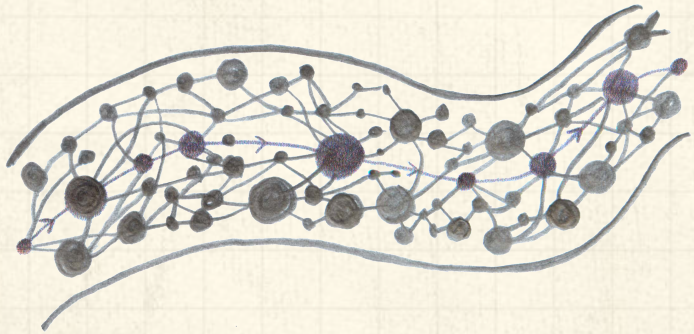

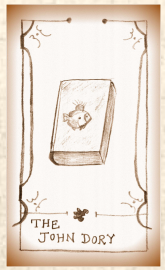

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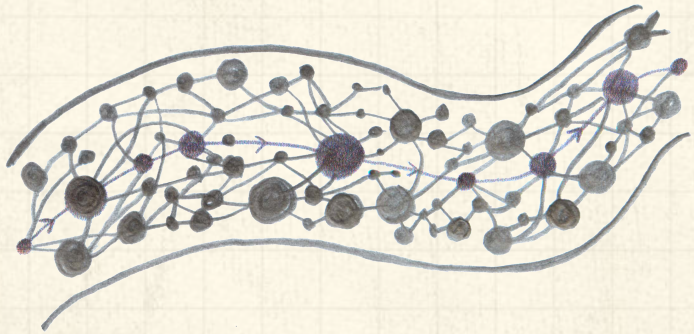

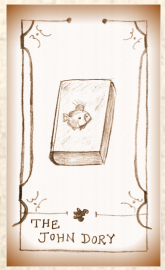

1999 Gallup poll:

- 6% of Americans said the lunar landings were fake.
- 5% were undecided.
- Video replay
- "The Comments, the comments, ..."

Buzz Aldrin has enough

Source

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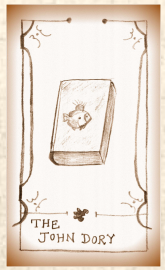

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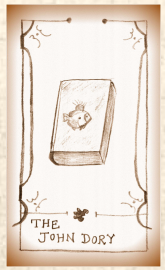

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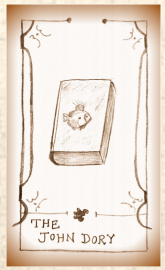

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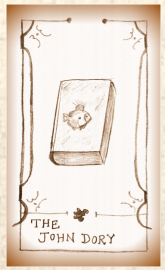

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  - Crushed by reality: Records of solar eclipses, comets, dendrochronology.

Finland does not exist:

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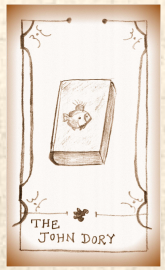
- Allusionist 82. A Novel Remedy
- Agatha Christie type murder mysteries: A salve post the Great War.
- Representation matters—possible future paths (narrative hodology)



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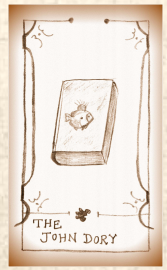

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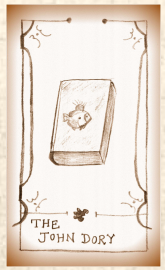

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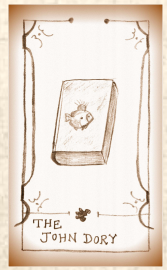

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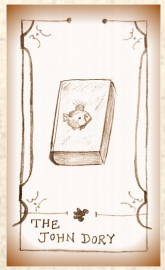

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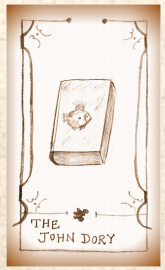

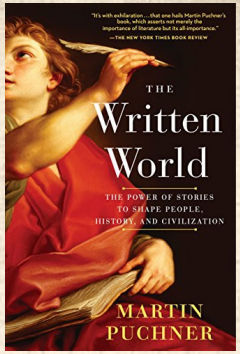

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We are what we read (NYT)

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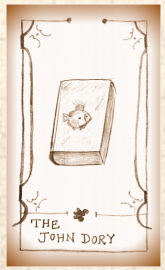

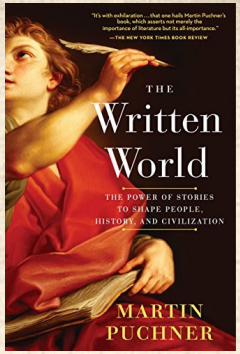

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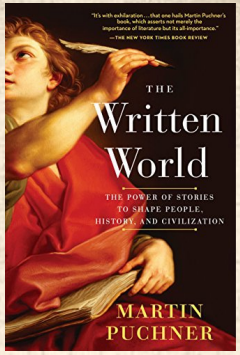

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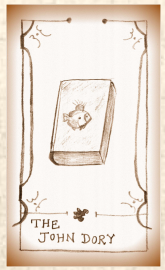

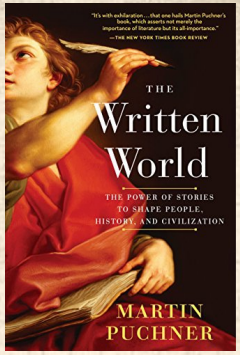

"The Written World: How Literature Shaped Civilization"

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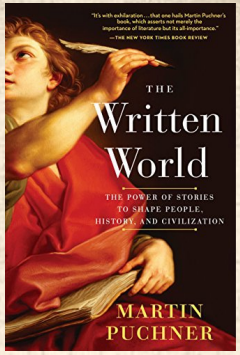

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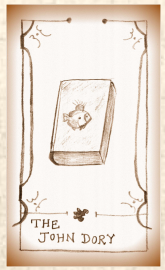
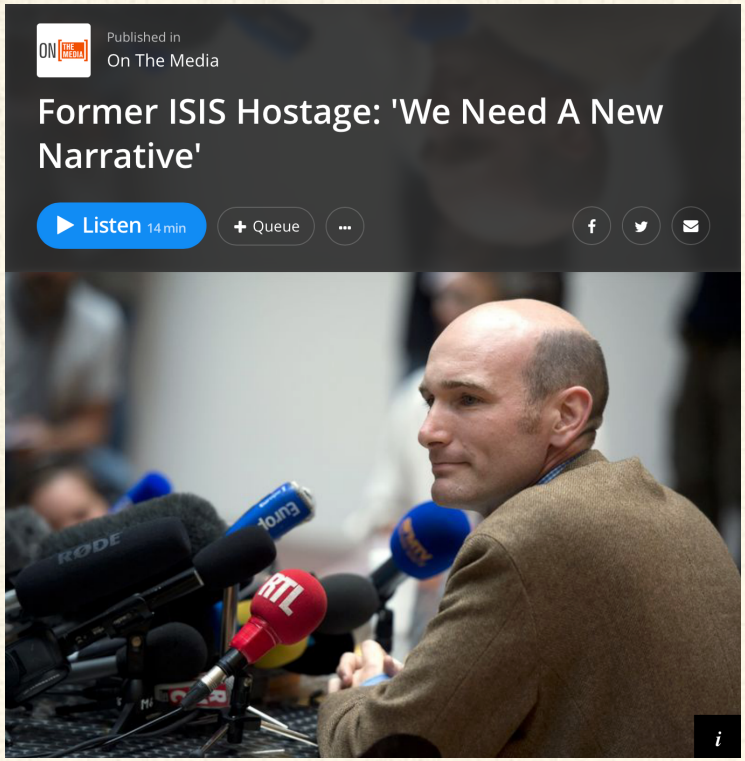


Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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.

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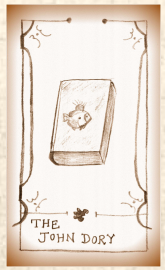

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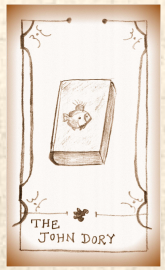

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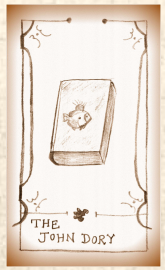

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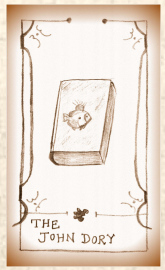

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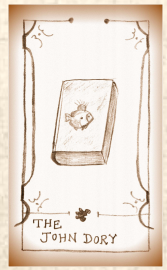

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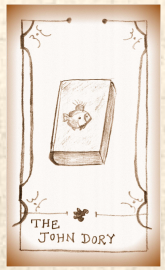

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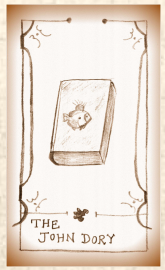

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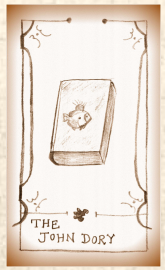
And this is what we have to do because in our world, in our societies what do people want?



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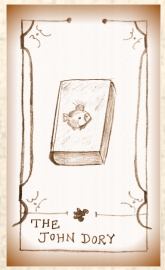

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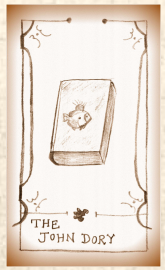

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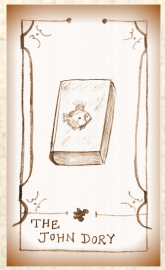

Stories make us do all kinds of things:

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

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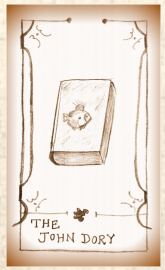

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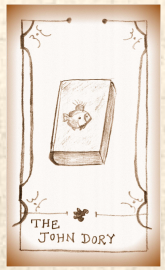

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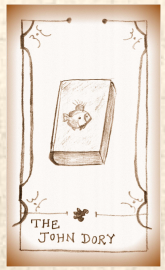
- He said he did not believe in conspiracy theories, but then added that the Sept. 11, 2001, attacks needed to be re-examined. He has listened to Alex Jones, whose radio show traffics in conspiracy theories and who once said that Mrs. Clinton "has personally murdered and chopped up" children. "He's a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



The Attack on the United States Capitol

Photo: Evelyn Hockstein for The Washington Post

Washington Post's massive analysis

Red Flags, Bloodshed, Contagion

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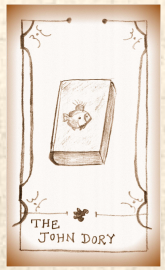

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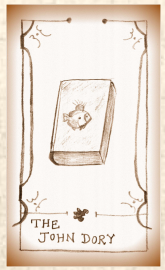
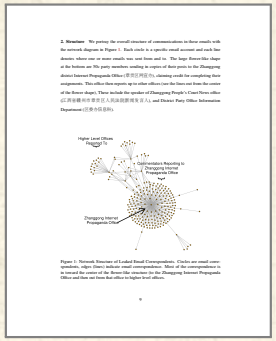
Senate Chaplain Barry Black:

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



Massive informational misdirection as a cognitive denial of story:



"How the Chinese government fabricates social media posts for strategic distraction, not engaged argument"

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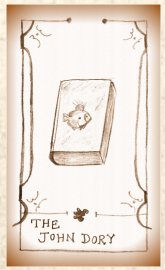

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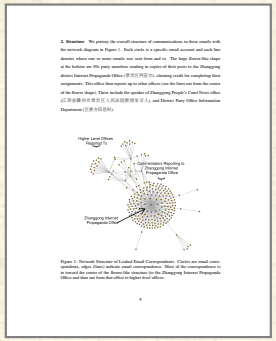

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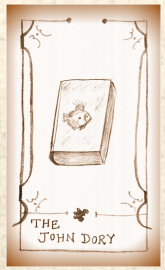

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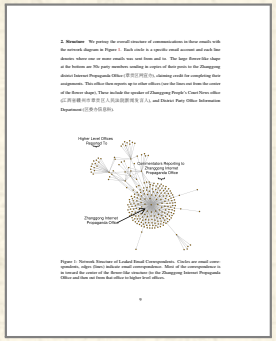

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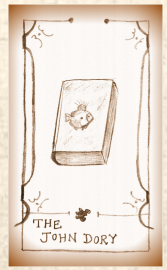
- "Surkov turned Russian politics into a bewildering constantly changing piece of theater. He sponsored all kinds of groups, …no one was sure what was real or fake. …it is a strategy of power that keeps any opposition constantly confused."



Stories generated the first surveillance state:

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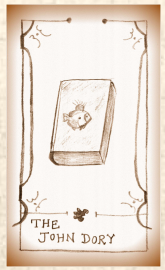

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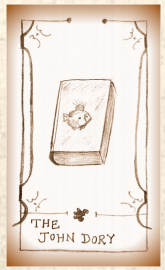

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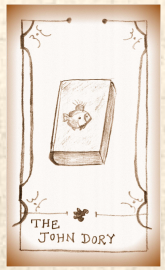


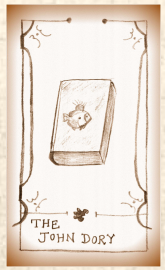
Defend the Story:

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



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
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Operating systems:

Windows: "No other installations before me"

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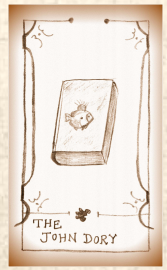
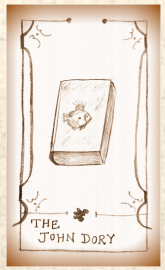
Propaganda

"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

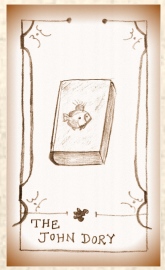


Defend your mind:

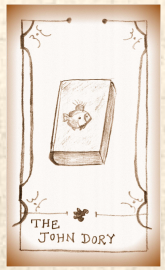
If a storyverse—whether it be through storytellers, groups, books, movies—tells you that all other stories are wrong, then that storyverse is false.



Book (story) burning (451 °F)



The American Dream = Rags to Riches



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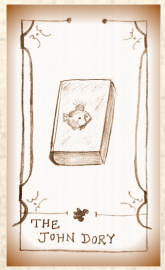

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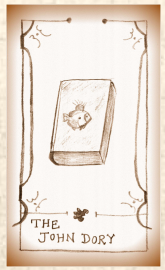

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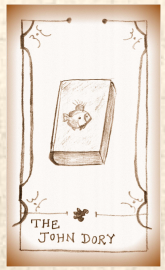

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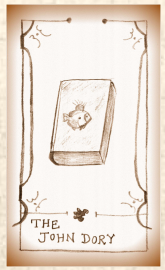

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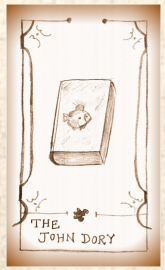

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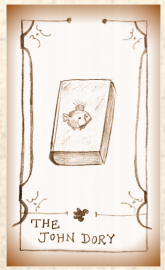

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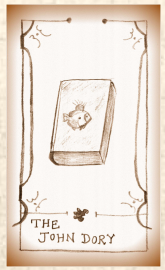

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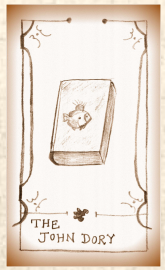

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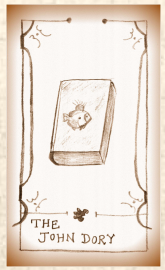

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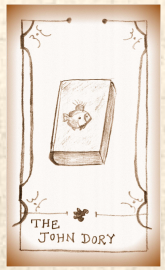

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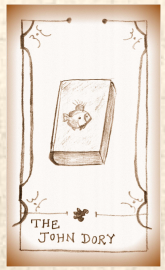

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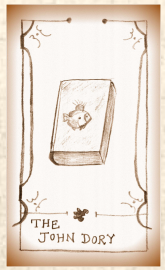

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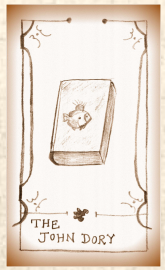

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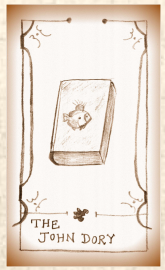

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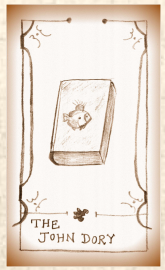
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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



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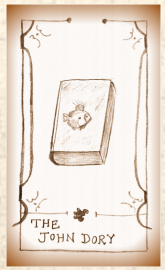

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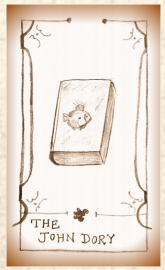

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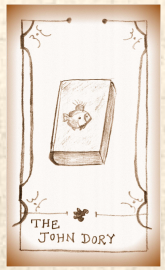

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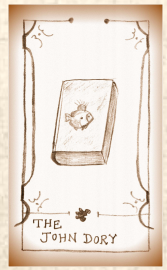

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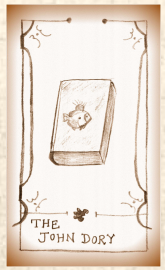

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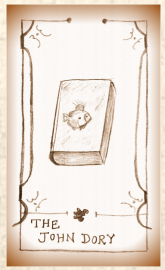

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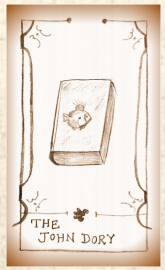

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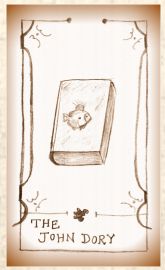

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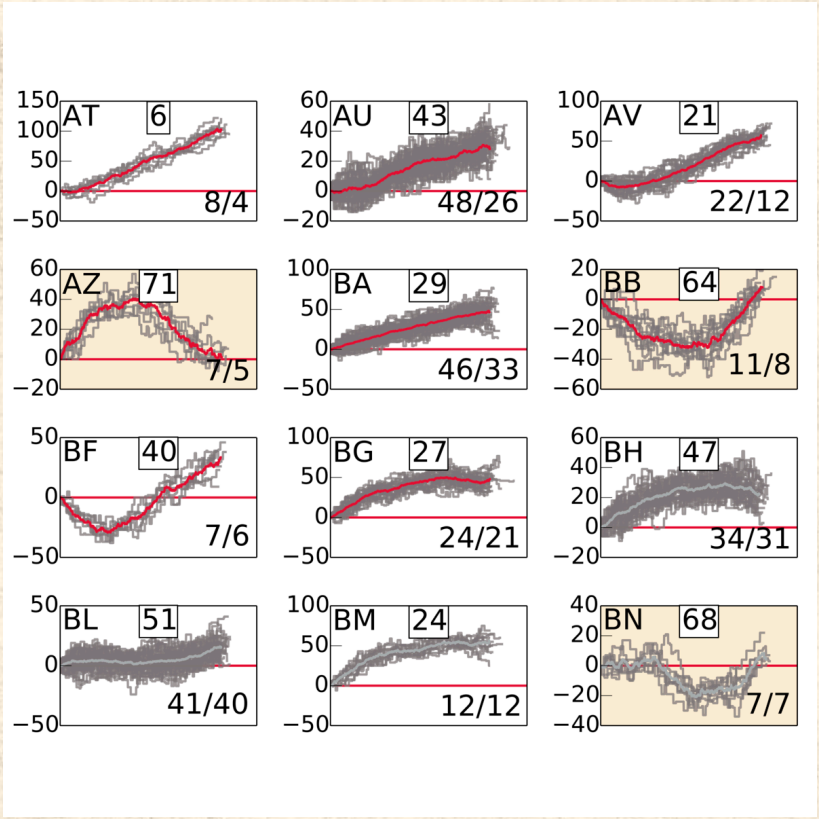
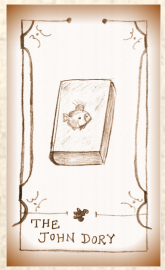
“The game story space of professional sports: Australian Rules Football”

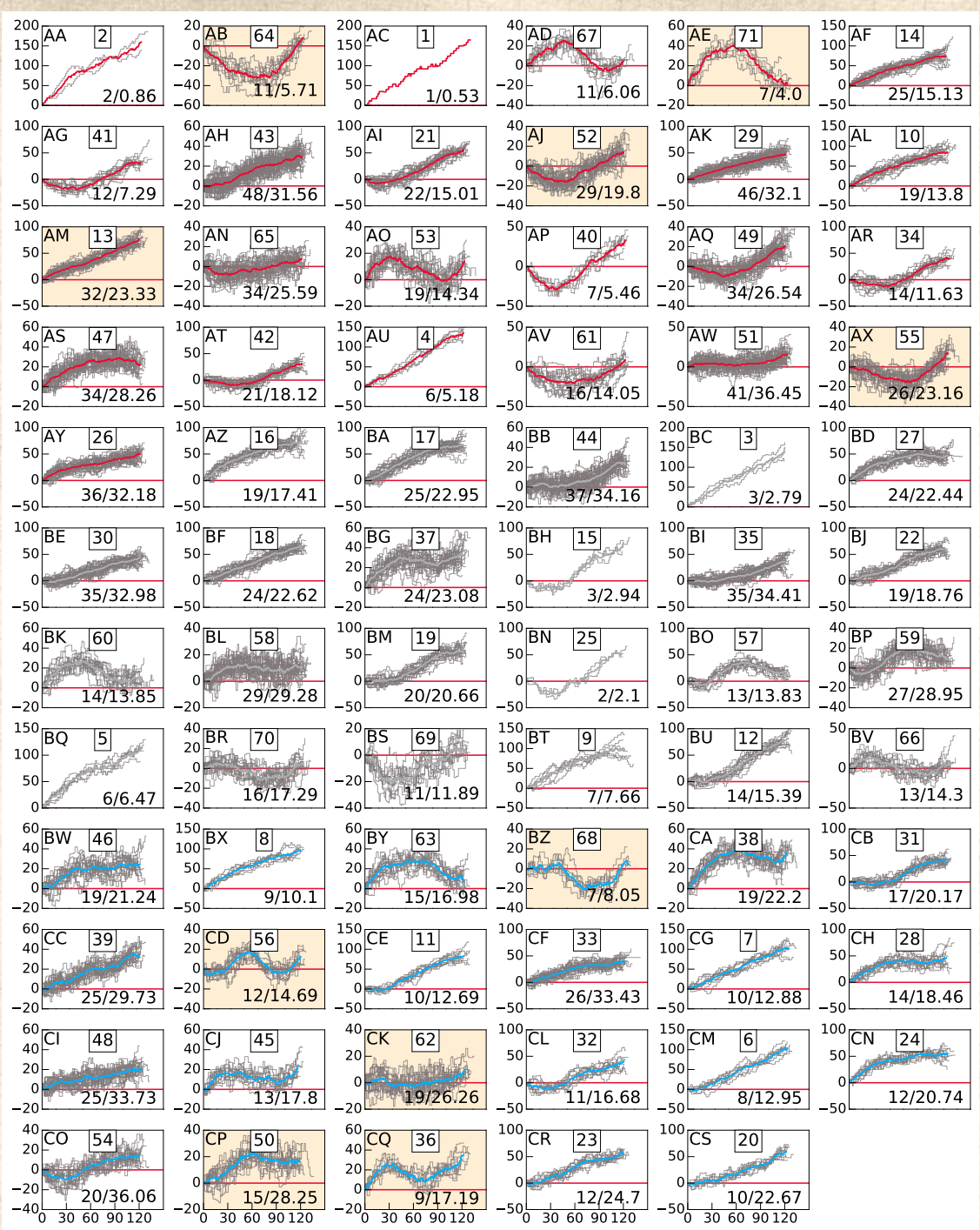
Kiley, Reagan, Mitchell, Danforth, and Dodds.
Physical Review E, **93**, 052314, 2016. [14]

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



Sports = Spontaneous story producing systems





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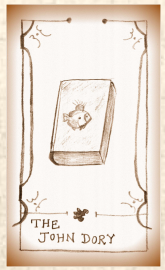
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References



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
Emotional Arcs
Moving ahead
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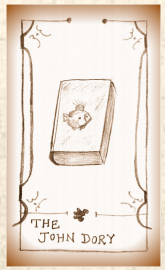
Being funny, a grand challenge for AI:

- Wired (2014-04-01): It's Comedian vs. Computer in a Battle for Humor Supremacy. Myq Kaplan pun-off.



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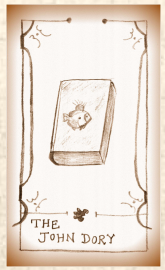

Competitive Punning, The Economist, 2017-08-12:

The quip and the dread

Why English is such a great language for puns

Gamers now even take part in world champunships

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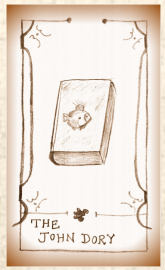
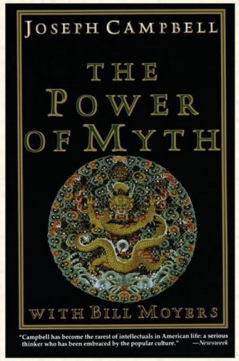
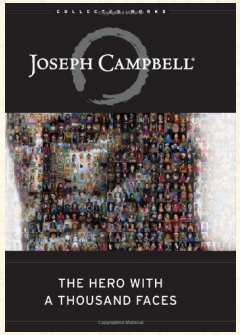


Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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



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



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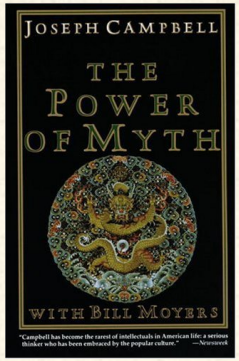

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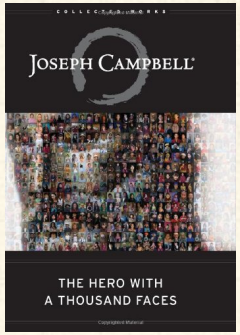

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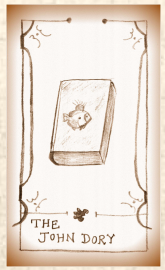
Highly influential but it's a trap!



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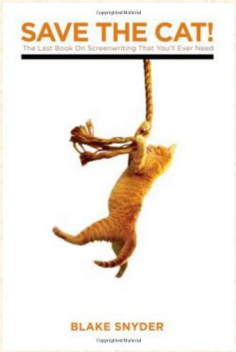

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Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
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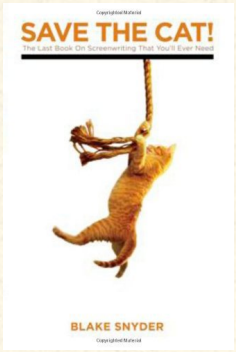

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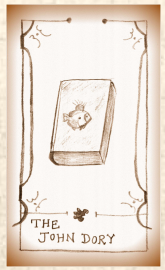

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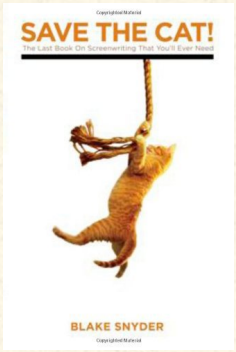

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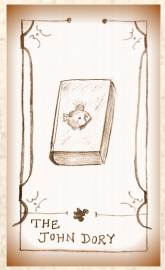

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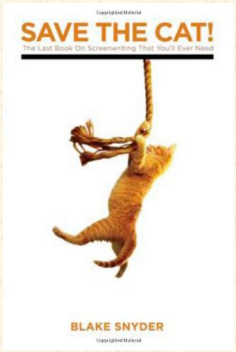

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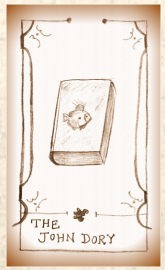

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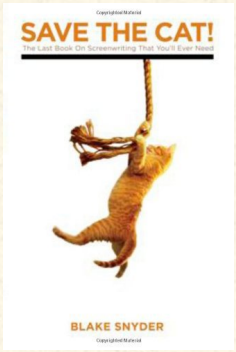

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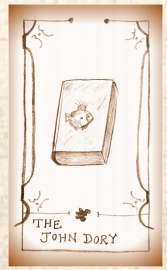
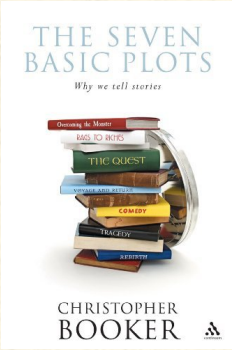
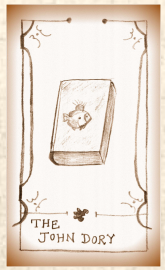


Seven “good” stories?:



“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).

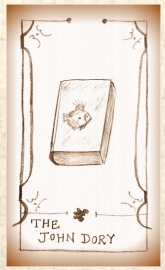


The taxonomy of stories:

- 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



contributed articles

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

BY JAMES ABELLO, PETER BROADWELL, AND TIMOTHY R. TANGHERLINI

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."

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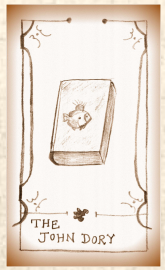
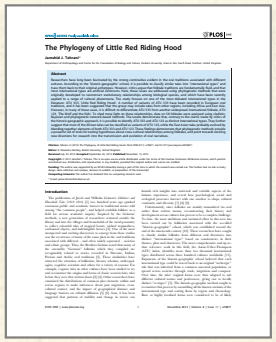
- 'Imagine a system in which the complexities of a folklore corpus can be explored at different levels of resolution, from the broad perspective of "distant reading" down to the narrow perspective of traditional "close reading."'





"The phylogeny of Little Red Riding Hood"

Jamshid J. Tehrani,
PLoS ONE, **8**, e78871, 2013. [22]

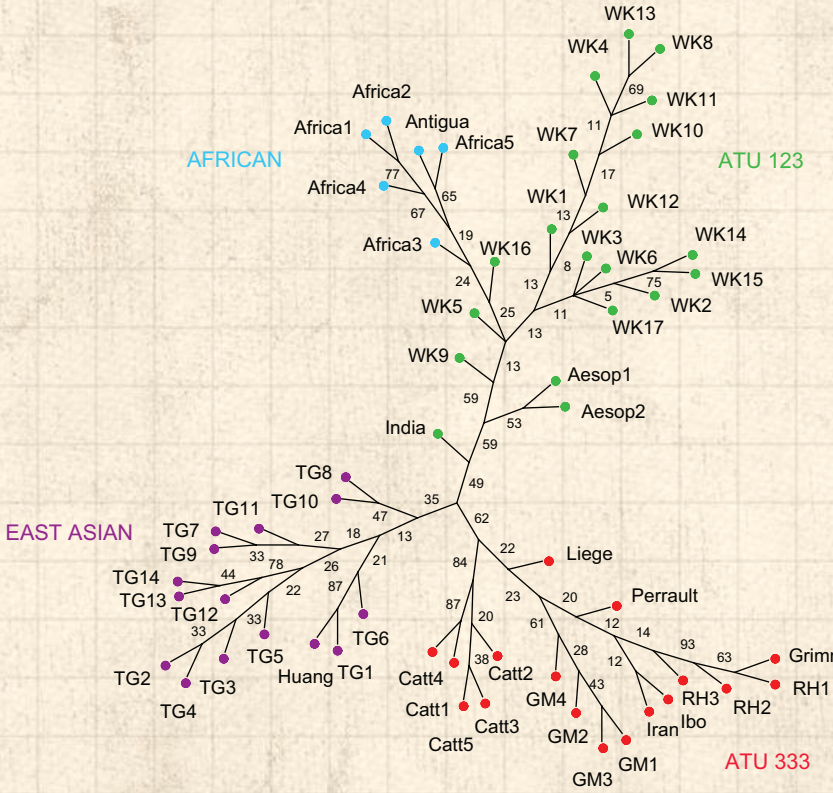
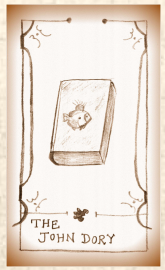


Figure 2. Majority-rules consensus of the most parsimonious trees returned by the cladistic analysis of the tales. Major groupings are labelled by region or ATU international type and indicated by the coloured nodes. Sub-types are indicated in the taxa labels (RH = Little Red Riding Hood; GM = Story 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.



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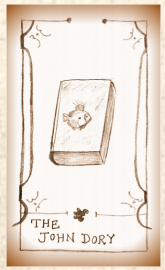

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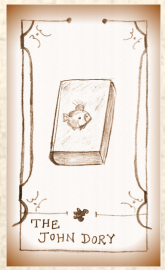

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What about comedies?

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

Stories are algorithms for life:

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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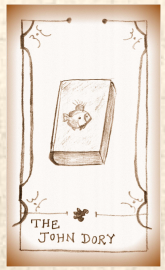

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Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

Homo narrativus:

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Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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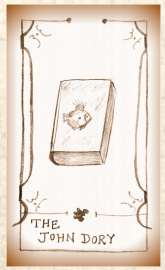

Stories are algorithms for life:

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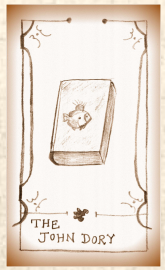

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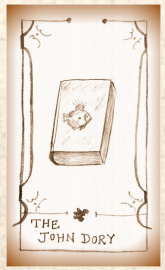

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Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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

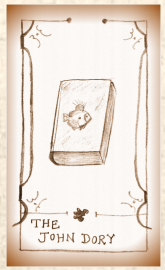
Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

Hatchings, Matchings, and Dispatchings

The boiled-down essence of stories:

Storytellers
Stories
Power
Taxonomy
Essence
Emotional Arcs
Moving ahead
References

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



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

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The boiled-down essence of stories:

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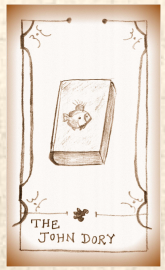
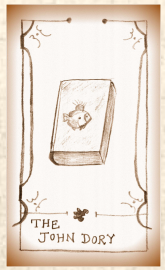
- Stories encode survival algorithms.



The boiled-down essence of stories:

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

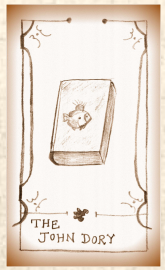
- Hatchings, Matchings, and Dispatchings.
- Stories encode survival algorithms.
- Survival algorithms for individuals and groups.



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.

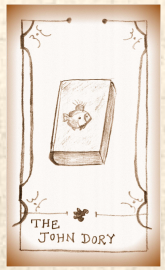


The boiled-down essence of stories:

Storytellers
Stories
Power
Taxonomy
Essence
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.



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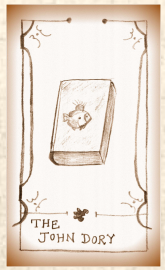
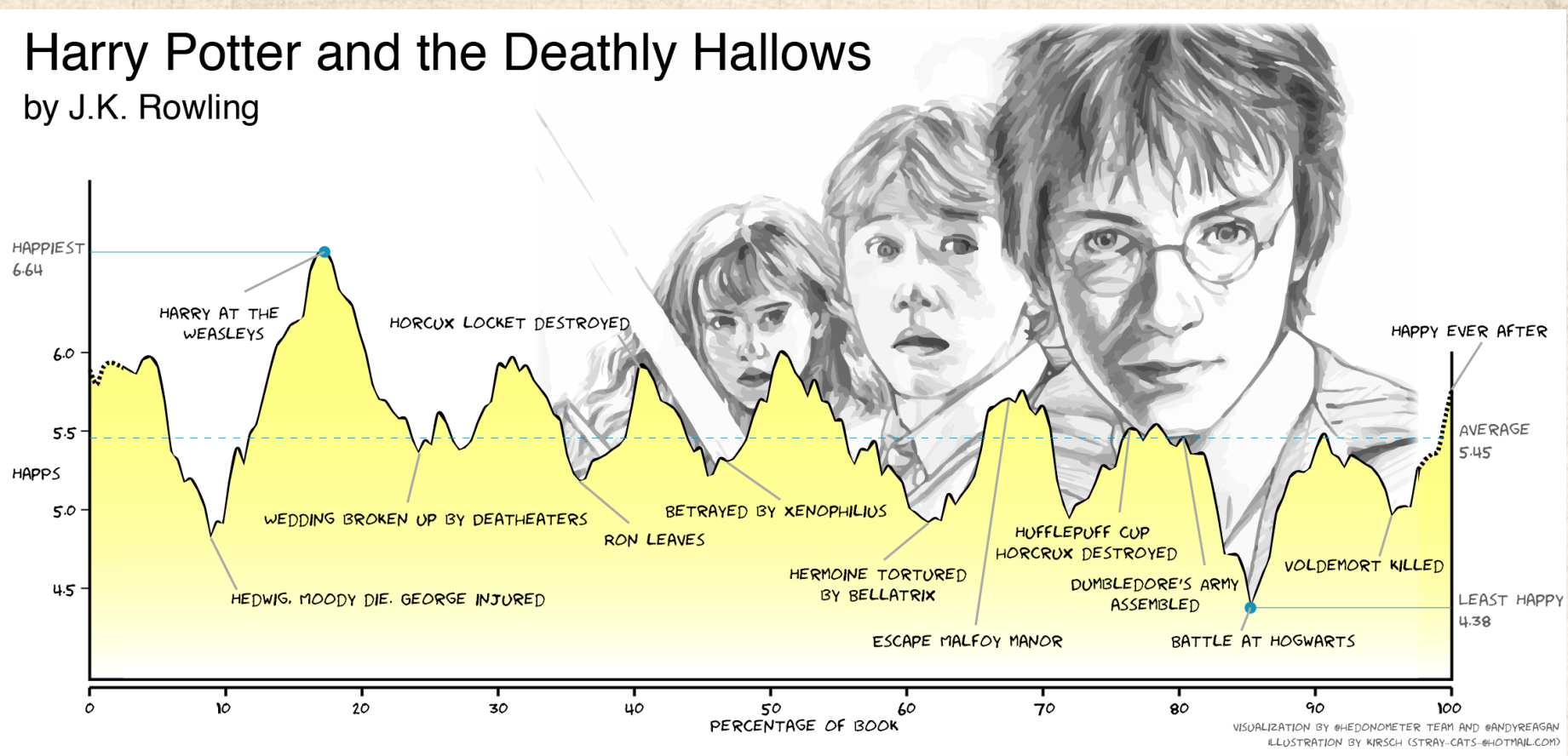
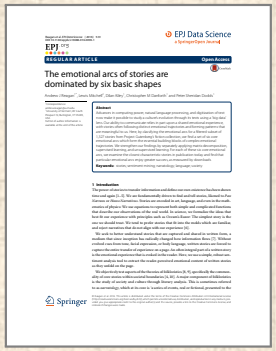
Kurt Vonnegut on the shapes of stories

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






EPJ Data Science
REGULAR ARTICLE
Open Access
The emotional arcs of stories are dominated by six basic shapes
Springer

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

Reagan, Mitchell, Danforth, Dodds, and Dodds.

EPJ Data Science, **5**, 31, 2016. [19]

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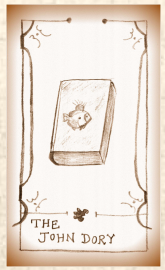
Harry Potter and the Trove of Plot Devices

More in PoCS, Vol 2.



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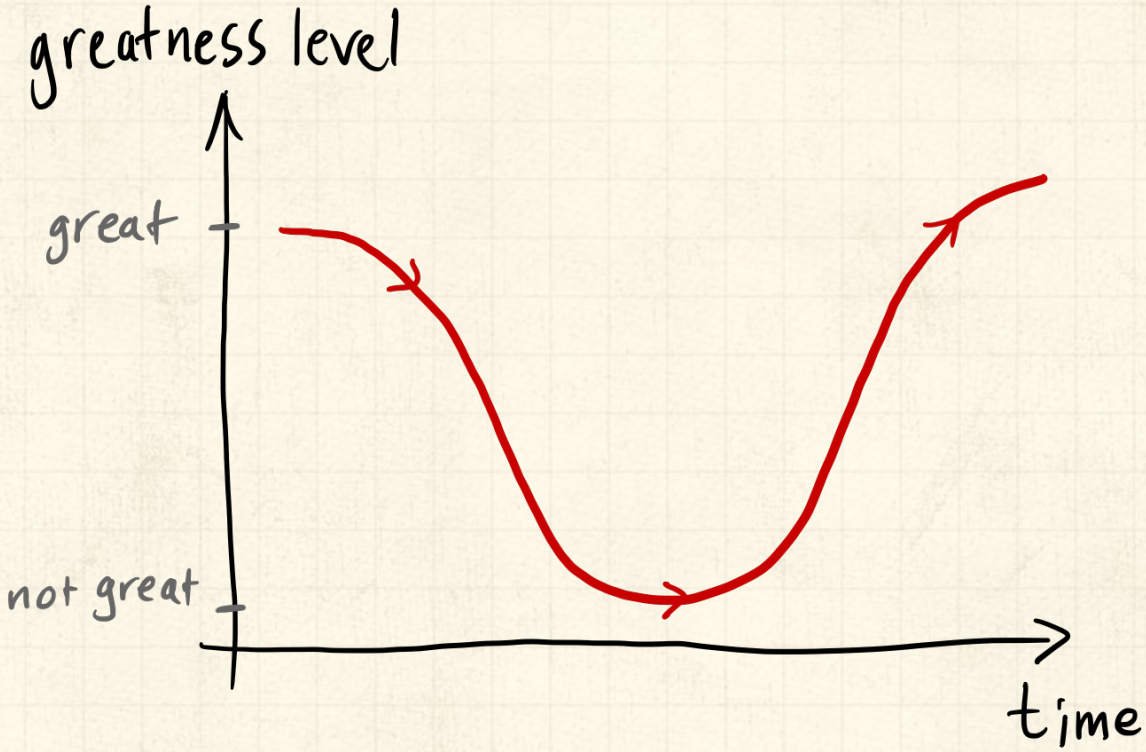

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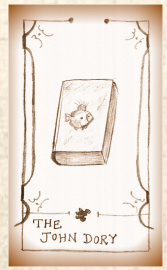

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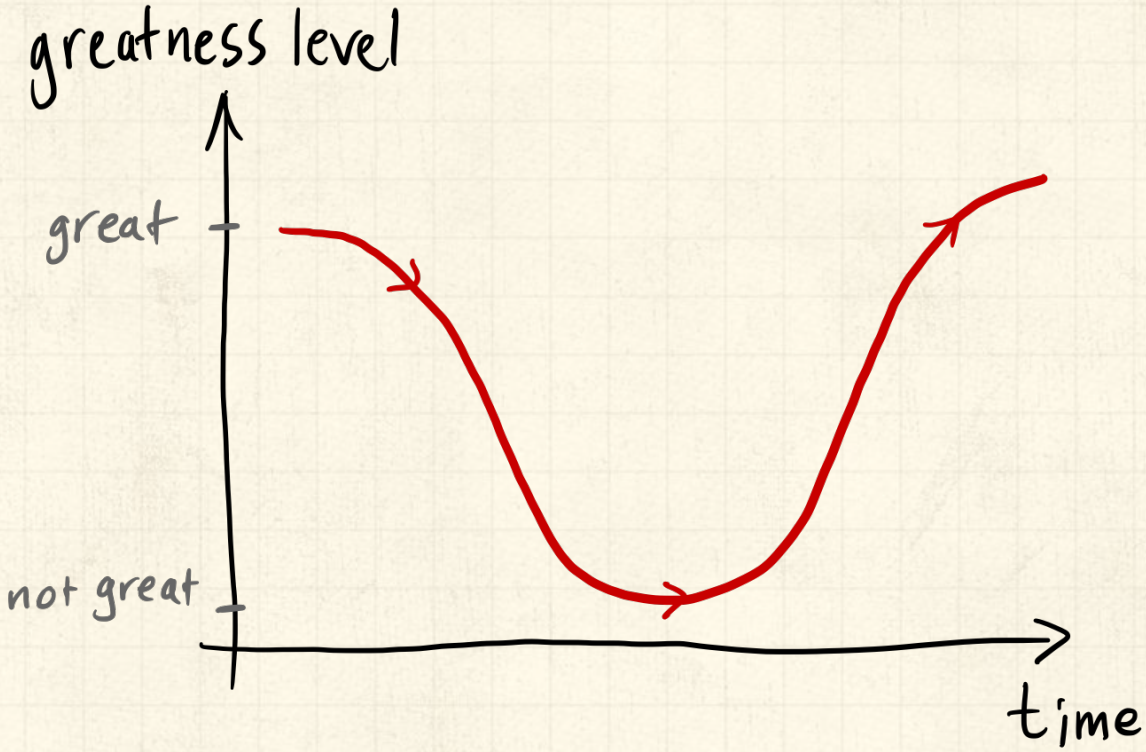

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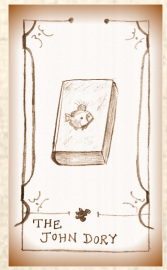
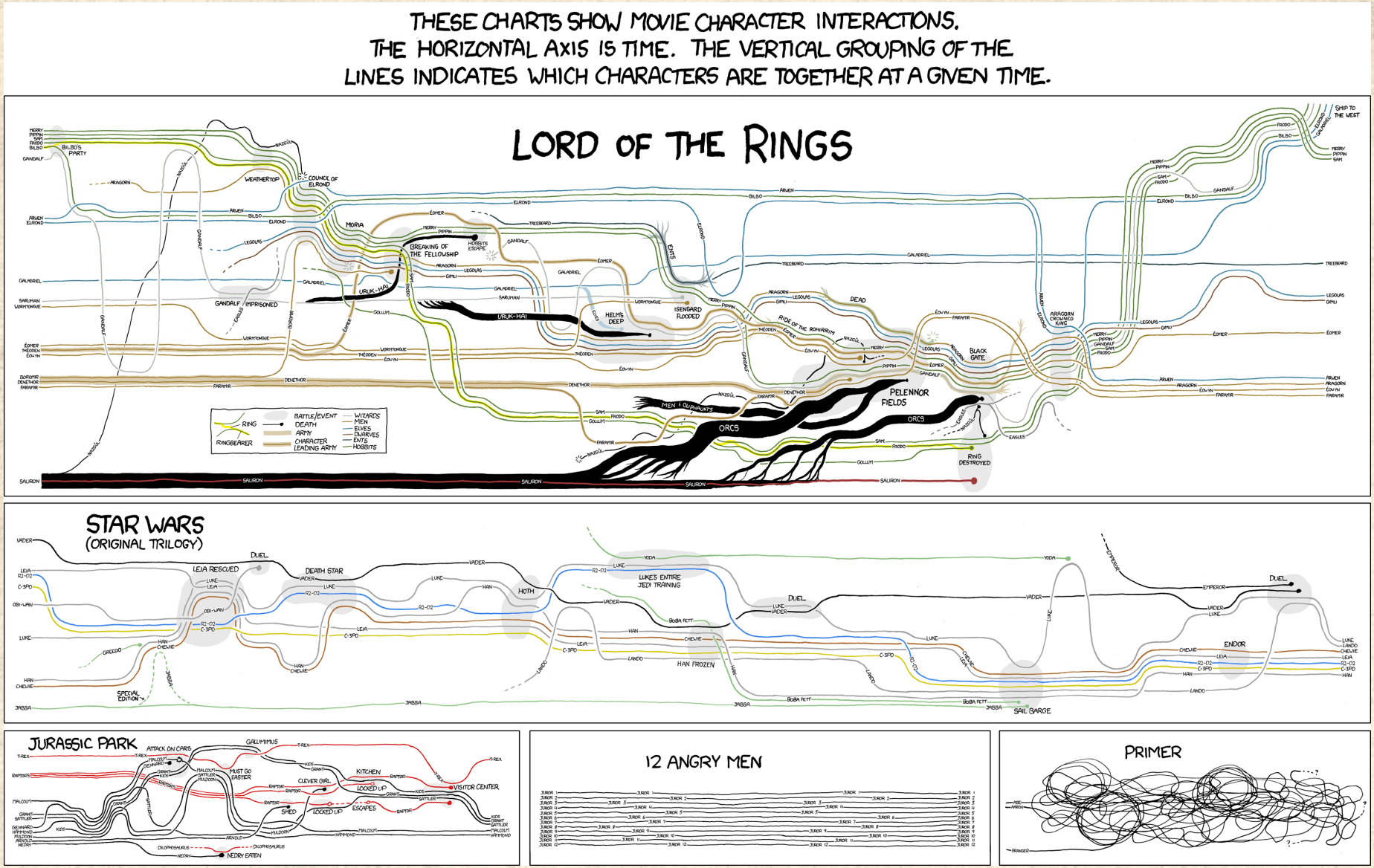
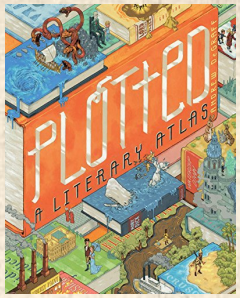
- Template used by many others including Bill Clinton.



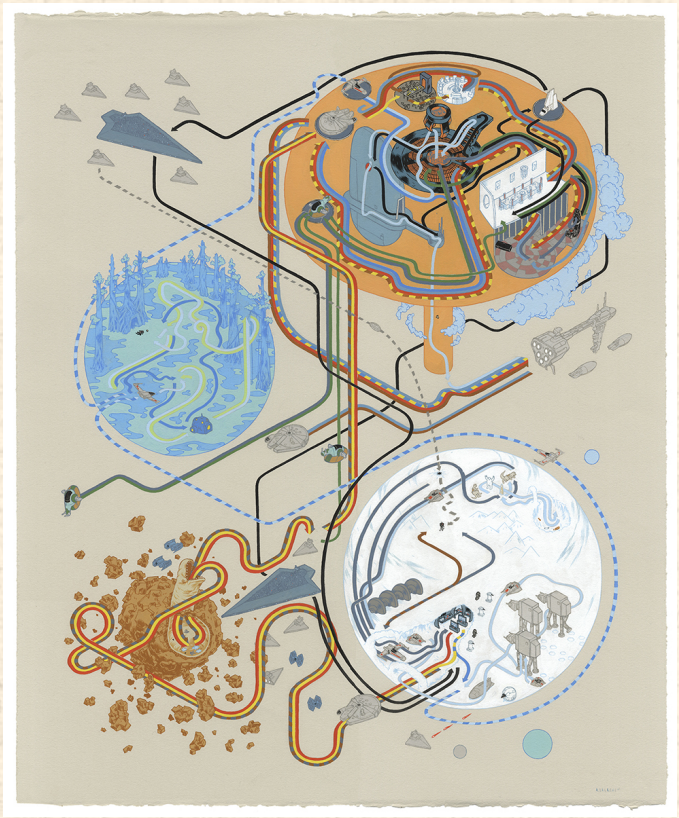
Emotional arcs are not plots. Neither are character paths:



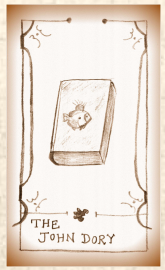
https://xkcd.com/657/



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



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



Trope inception:

- Chekhov's gun
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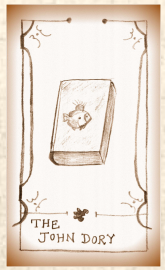


A Science of Stories?

Stories are everything[1]

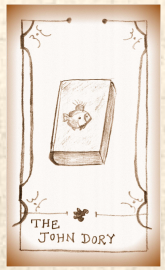
- Maybe, yes.
- Stories $\sim$ Characters* + Time.
- One of the most important, dangerous, enjoyable terrifying things we can study.

We talk about and study stories everywhere but ...

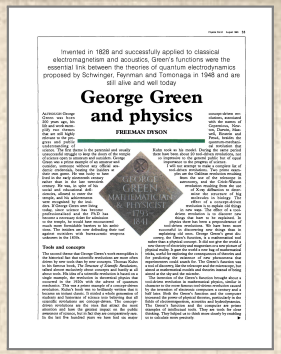
- We don't have a central place academically.
- Departments of: English, political science, folklore, cognitive sciences, arts, musicology, communication, ...

Next big thing, maybe:

- SOCKS: Study of Online Corpora, Knowledge, and Stories



[1] Okay, poems are everything



Invented in 1828 and successfully applied to classical electromagnetism and acoustics, Green's functions were the essential link between the theories of quantum electrodynamics proposed by Schwinger, Feynman and Tomonaga in 1948 and are still alive and well today

George Green and physics

FREEMAN DYSON

GEORGE GREEN MATHEMATICIAN & PHYSICIST 1793? - 1841

Tools and concepts

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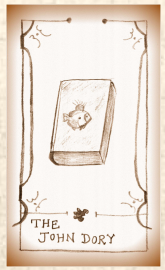

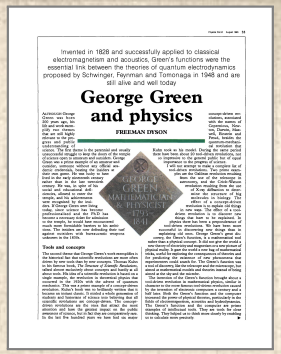

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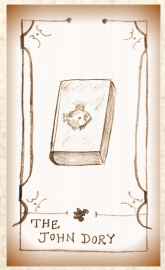

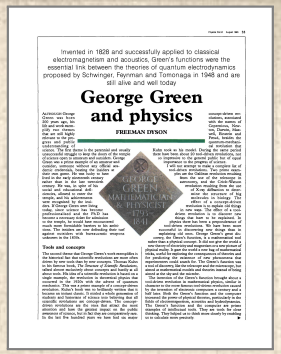

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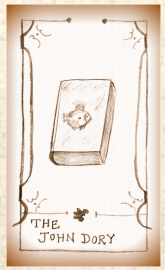

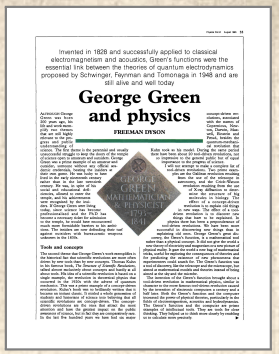

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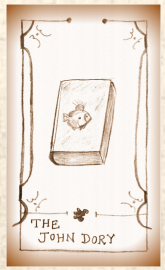

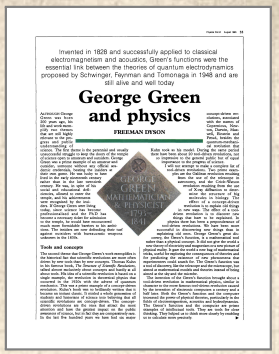

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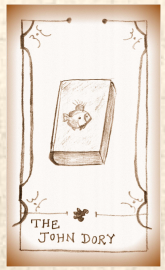

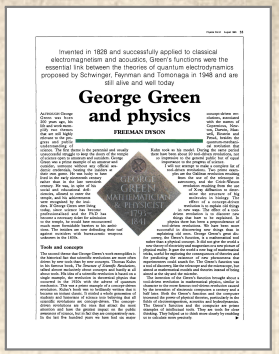

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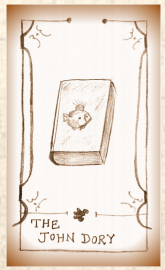

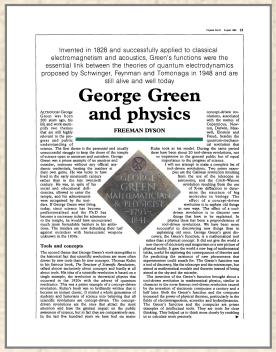

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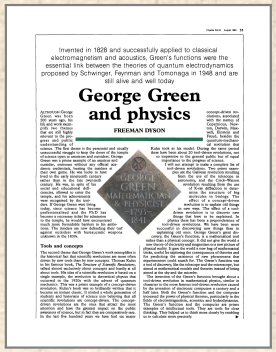

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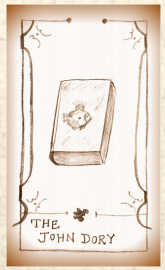

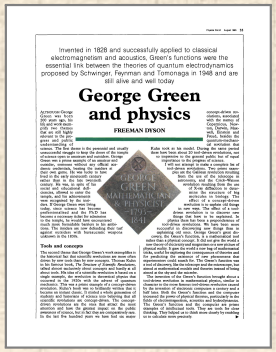

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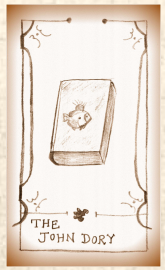
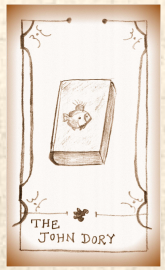
- The effect of a tool-driven revolution is to discover new things that have to be explained."



Observations/Claims/Questions:

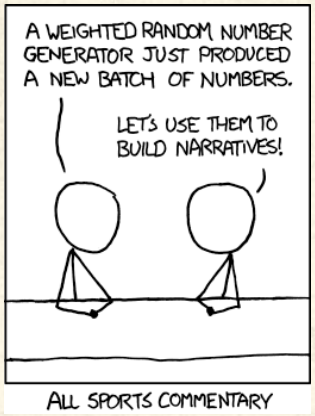
- Primacy of storytelling and storybelieving in for individuals and populations.
- Maybe: Stories are dynamical paths; plots are algorithms that give rise to stories.
- Internet gives extraordinary power to propaganda, disinformation, conspiracy theories, ...
- Global social media creates a global robust-yet-fragile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



Observations/Claims/Questions:

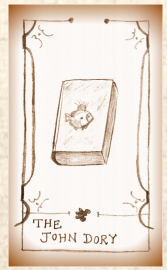
- Basic social fabric: What is the spectrum of stories in the media being told about classes of people, from within and without.
- Story decoherence: telephone game
- What about stories about global problems like climate change? Government? Journalism?
- All separately powerful: Words, Music/Sound, Visual,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



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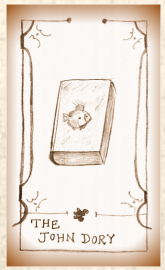

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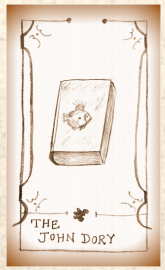

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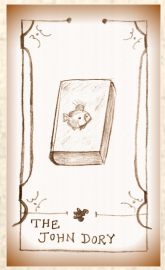

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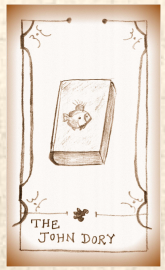

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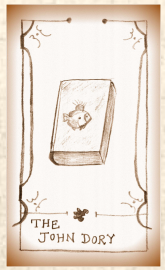

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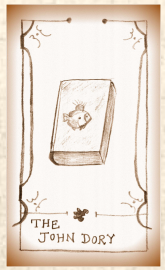

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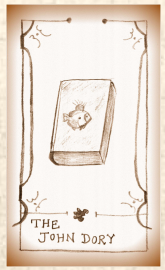
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