## What's the Story?

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Principles of Complex Systems, Vols. 1, 2, & 3D CSYS/MATH 300, 303, & 394, 2022-2023 | @pocsvox

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

























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On Instagram at pratchett the cat

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### Outline

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# Story editor **⊞**♂



Every can opener is a possible pillow.

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## Typed by Pratchett the Cat:

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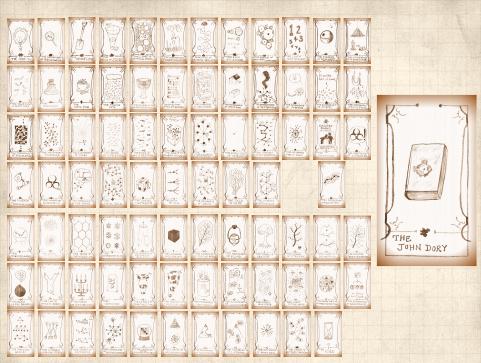
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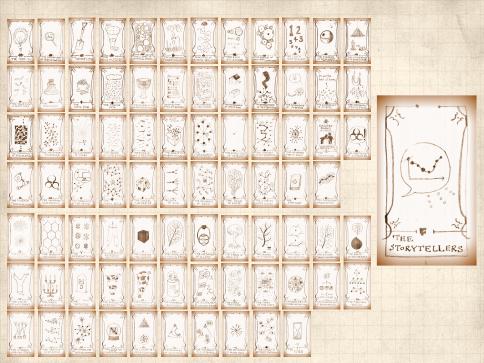
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### Super Survival of the Stories:



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.

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### Major competing storytelling entities:

News.

Books, magazines.

🚜 Art.

Music industry.

Television, movie studios, Netflix, HBO, Disney.

🙈 Social media: Facebook, Instagram, Snapchat, ...

All sport.

Video games.

Religions, ideologies, belief systems, Freemasons, ...

Enduring coherent groups: Cultures, countries, cities, ...

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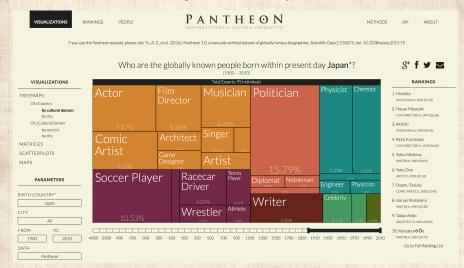
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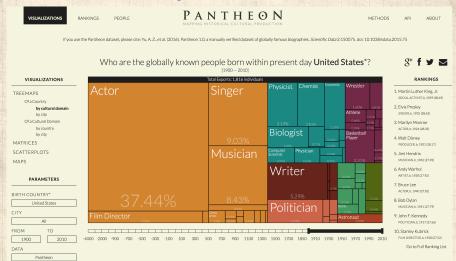


## Cultural products from Pantheon ☑:

Writers, artists, movie directors, video game directors.

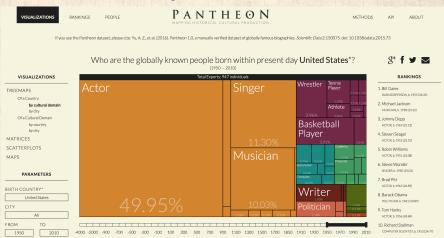
### The famous are storytellers—Japan:





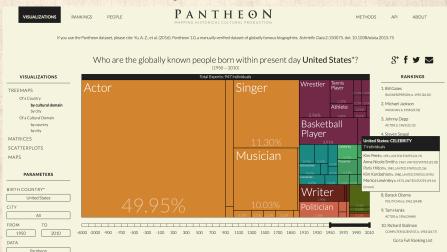
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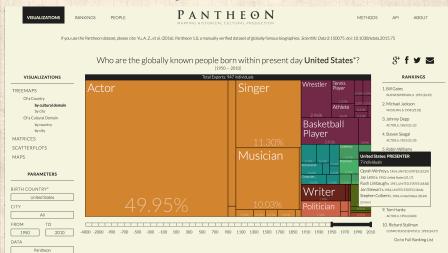
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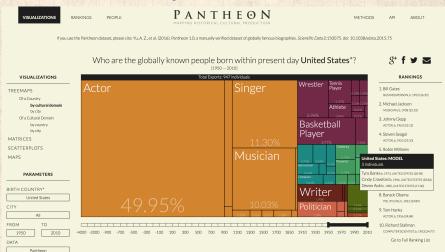


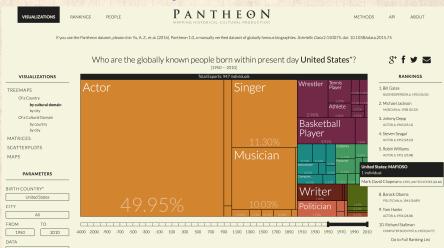
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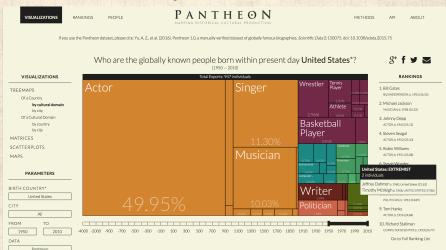
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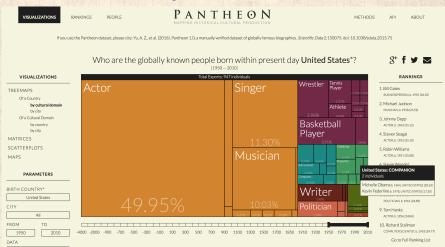






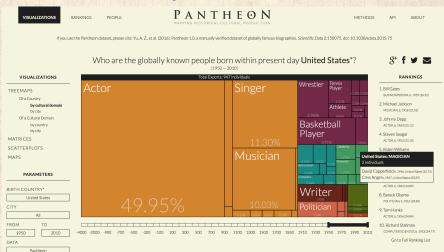


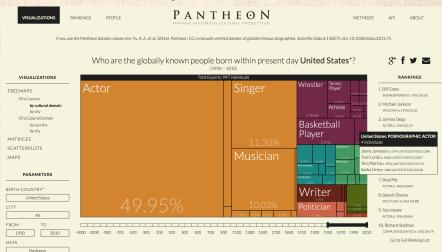


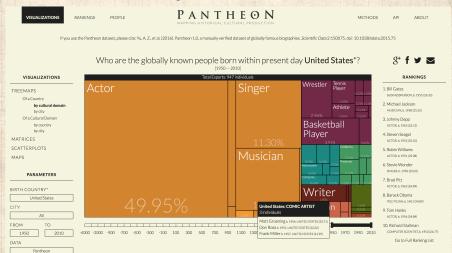


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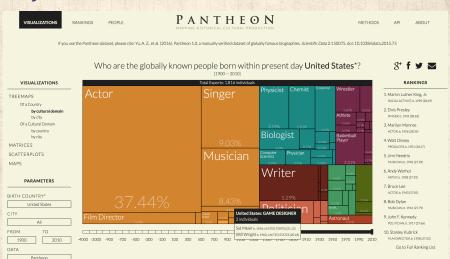
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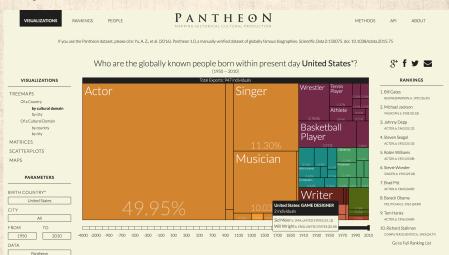


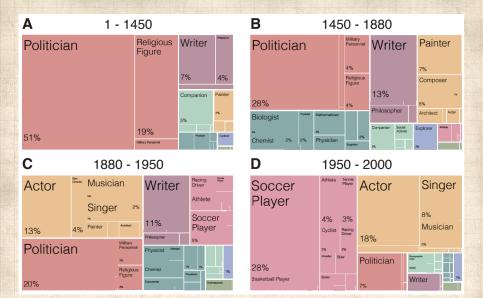


### Storytellers win:



### Storytellers win:





## It's all about algorithms (stories):



"On the Origin of Stories: Evolution, Cognition, and Fiction" **3** by Brian Boyd (2010). [?]



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## (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."

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

## Stories are everything



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Full torturous scene is here ⊞♂

#### Game of Thrones, S6E06: The Iron Throne

No enemy can defeat it."

"What unites people? Armies? Gold? Flags? Stories. There's nothing in the world more powerful than a good story.

Nothing can stop it.



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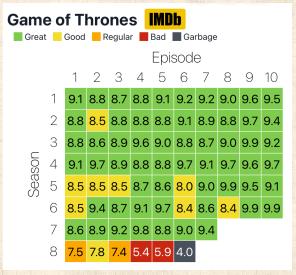
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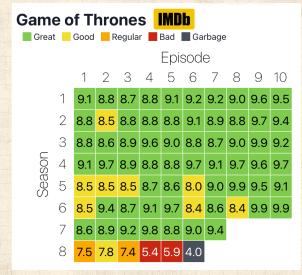


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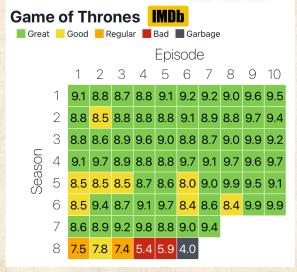
Except for writers who destroy their own stories.



...

Except for writers who destroy their own stories.

Also audiences.

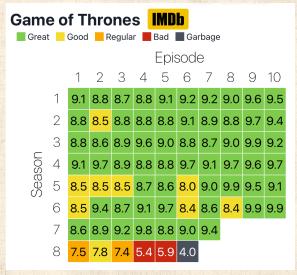


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Also audiences.

Basic word of mouth.



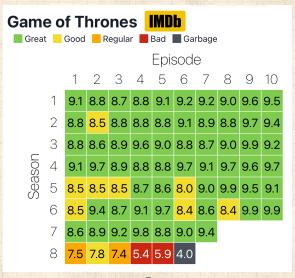
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🙈 And critics. 🗹



Except for writers who destroy their

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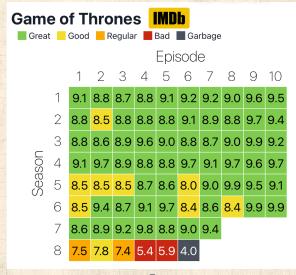
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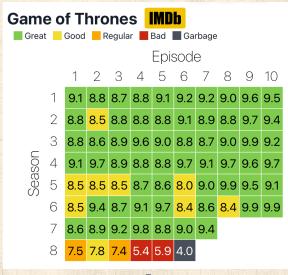
And other, better stories ♂.



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

...

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



Series Heat for GoT

## We see (certain kinds of) stories ⊞♂



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Heider and Simmel, 1944 [?], Source [6]



Story ☑: a laying out of a temporal sequence of events.

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events.



"Time is a great storyteller" (Irish proverb)

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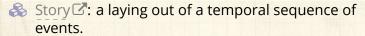
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Events may be any balance of real and imagined.

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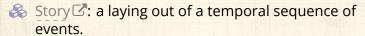
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"Time is a great storyteller" (Irish proverb)

🙈 Events may be any balance of real and imagined.

Narrative  $\equiv$  Story.

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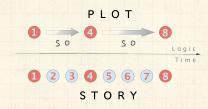
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Narrative  $\equiv$  Story.

Plot : Essential sequence of a story's elements.



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<sup>&</sup>lt;sup>1</sup>By まとりょ<u>F</u>しか — Own work, CC BY-SA 4.0,

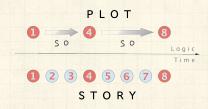
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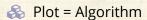
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Goal: a Science of Stories.



🙈 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 .



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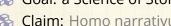




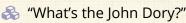
xkcd.com/904/



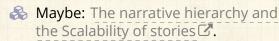
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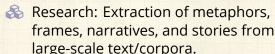


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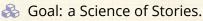
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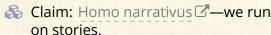
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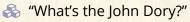


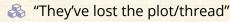


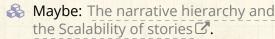


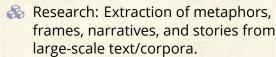


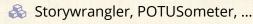












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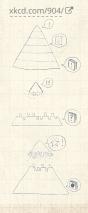
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Goal: a Science of Stories.



🚵 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?



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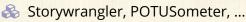


Maybe: The narrative hierarchy and the Scalability of stories .



Research: Extraction of metaphors, frames, narratives, and stories from large-scale text/corpora.







Research: What's the taxonomy of human stories?



Maybe: Stories ↔ Algorithms

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## Algorithms are everywhere:

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

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### Algorithms, recipes, stories, ...



"The Code Economy: A Forty-Thousand Year History" **3**, **2** by Philip E Auerswald (2017). [?]



"Algorithms to Live By" **3** 🔀 by Christian and Griffiths (2016). [?]



"Once Upon an Algorithm" **3** by Martin Erwig (2017). [?]

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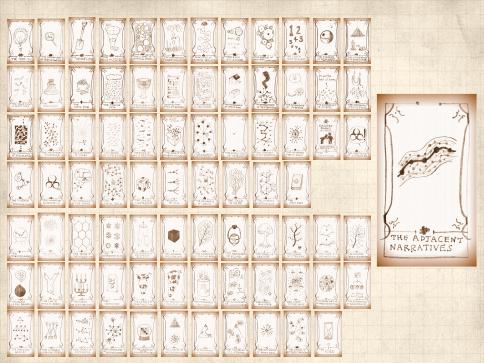
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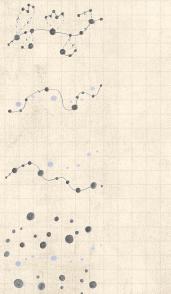


Also: Numerical Recipes in C  $^{[?]}$  and How to Bake  $\pi$   $^{[?]}$ 





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











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

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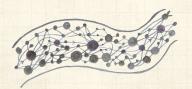
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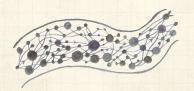
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1/4. A real story is never recorded and retold completely

Impossible to record every detail.



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

Impossible to record every detail.

Recording entails compression to scale of medium (narrative hierarchy). The PoCSverse What's the Story? 27 of 82

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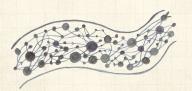
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1/4. A real story is never recorded and retold completely

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



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

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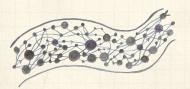
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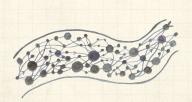




2/4. The infinitude of adjacent stories will afford "better" stories



Better = More engaging, more motivating to spread, more durable under spreading.



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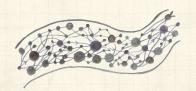
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# 2/4. The infinitude of adjacent stories will afford "better" stories

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



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

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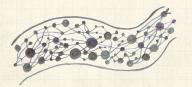
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3/4. The infinitude of adjacent stories means "better" stories exist for those who would disinform

Adjacent stories may be truth-limited and/or falsehood-bearing.

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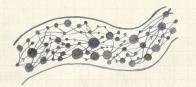
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3/4. The infinitude of adjacent stories means "better" stories exist for those who would disinform

Adjacent stories may be truth-limited and/or falsehood-bearing.

There may exist adjacent stories that conform to a world view/ideology. The PoCSverse What's the Story? 29 of 82

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

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

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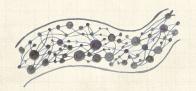
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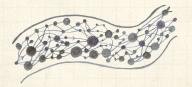
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4/4. Character is the short cut to story



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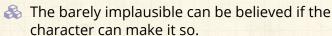
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## 4/4. Character is the short cut to story





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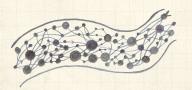
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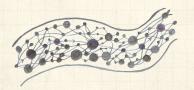




## 4/4. Character is the short cut to story

The barely implausible can be believed if the character can make it so.

A believe-to-be evil character can do anything.



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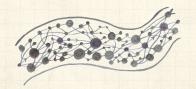
**Emotional Arcs** 

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## 4/4. Character is the short cut to story

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



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# 1999 Gallup poll:

6% of Americans said the lunar landings were fake.

5% were undecided.

& Video replay # 12

"The Comments, the comments, ..."

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# Buzz Aldrin has enough 🖽 🗗



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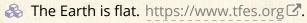
**Emotional Arcs** 

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

### Highlights:



The PoCSverse What's the Story? 33 of 82 Storytellers

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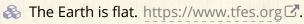
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♣ The Beatles never existed: http://www.thebeatlesneverexisted.com .

Per the title, JK Rowling doesn't exist.

The PoCSverse What's the Story? 33 of 82 Storytellers

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Q. "Is it possible that a person can write six thick books that are translated into 55 languages and sell more than 250 million copies in less than 10 years? — Nina Grünfeld <a>C™</a>

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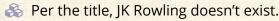


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- Q. "Is it possible that a person can write six thick books that are translated into 55 languages and sell more than 250 million copies in less than 10 years? — Nina Grünfeld 
  ""
- A. "Yes. Yes it is."

The PoCSverse What's the Story? 33 of 82 Storytellers

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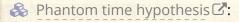
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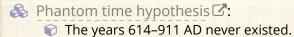
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## A Phantom time hypothesis 2:

- The years 614–911 AD never existed.
- Straight up jump of 297 years orchestrated by a first millennium cabal.

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

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#### Finland does not exist:



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- A Parasocial relationships 

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

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   ✓

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Moving ahead



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- Aurora, Colorado shooting (Joker)

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Las Vegas, 2017/10/01:

60 murdered, over 400 injured, 1000 bullets.

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Marked the lowest point ever on the English

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Why did the Las Vegas shooter do what he did?



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- Why did the Las Vegas shooter do what he did?
- Why have we forgotten about it?





# "The Written World: How Literature Shaped Civilization" **3** 🖸

by Martin Puchner (2017). [?]

## We are what we read ☑ (NYT)

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

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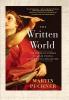
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The PoCSverse What's the Story? 38 of 82

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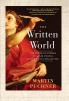
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- 🙈 Not lighting up Google Scholar 🗹
- & BBC, strawfree: How stories have shaped the world 🗹

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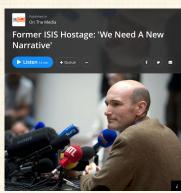
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#### Story Wars:



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

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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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We created, for instance, accounts on the social media named "Stop Jihadism," and this is [BLEEP], like they did not understand anything.

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[BROOKE LAUGHS]

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

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

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### Stories make us do all kinds of things:

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



"According to court documents, Mr. Welch said he had come armed to help rescue the children." The PoCSverse What's the Story? 41 of 82

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### Stories make us do all kinds of things:

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



- "According to court documents, Mr. Welch said he had come armed to help rescue the children."
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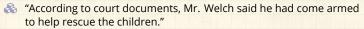
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### Stories make us do all kinds of things:

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





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

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## 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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## The Attack on the United States Capitol 2



Photo: Evelyn Hockstein for The Washington Post

Washington Post's massive analysis Red Flags, Bloodshed, Contagion

### Senate Chaplain Barry Black:

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

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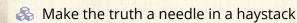
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## Massive informational misdirection as a cognitive denial of story:



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



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## Massive informational misdirection as a cognitive denial of story:



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



Make the truth a needle in a haystack



Trump's Reality Distortion Field . http://www.onthemedia.org



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## Massive informational misdirection as a cognitive denial of story:



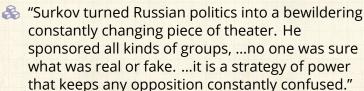
"How the Chinese government fabricates social media posts for strategic distraction, not engaged argument" King, Pan, and Roberts,

American Political Science Review, , , Forthcoming. [?]



Make the truth a needle in a haystack





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# Stories generated the first surveillance state:



Low tech, low cost.

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## Stories generated the first surveillance state:





Low tech, low cost.



Infrastructure maintained in the Social Wild by storytellers and storybelievers.

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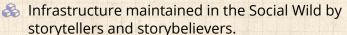
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# Stories generated the first surveillance state:



Low tech, low cost.



Omnipresence and omniscience: The end of privacy.

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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 The PoCSverse What's the Story? 45 of 82

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## Defend the Story:

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References

### Operating systems:

Windows: "No other installations before me"



## Defend the Story:

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References

### Operating systems:

Windows: "No other installations before me"

## Propaganda

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



## Defend your mind:

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

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## Book (story) burning (₹ (451°F)



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The story that anyone can become King or Queen.

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The story that anyone can become King or Queen.

Story of individual, not the collective.

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The story that anyone can become King or Queen.

Story of individual, not the collective.

But we know about fame and success:

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The story that anyone can become King or Queen.

Story of individual, not the collective.

But we know about fame and success: The presence of outsized fame in a social system means social imitation is a driver of value. The PoCSverse What's the Story? 48 of 82

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The story that anyone can become King or Queen.

Story of individual, not the collective.

But we know about fame and success: The presence of outsized fame in a social system means social imitation is a driver of value.

Stories of societies can only hold if they have been and remain believable.

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The story that anyone can become King or Queen.

Story of individual, not the collective.

But we know about fame and success: The presence of outsized fame in a social system means social imitation is a driver of value.

Stories of societies can only hold if they have been and remain believable.

"Entertaining beliefs in economic mobility": Effort to understand if rags to riches stories in popular culture affect people's lives. [?] The PoCSverse What's the Story? 48 of 82

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"We'll probably need a new national story.

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"We'll probably need a new national story. Up until now, America's story has been some version of the rags-to-riches story, The PoCSverse What's the Story? 49 of 82

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"We'll probably need a new national story. Up until now, America's story has been some version of the rags-to-riches story, the lone individual who rises from the The PoCSverse What's the Story? 49 of 82

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"We'll probably need a new national story. Up until now, America's story has been some version of the rags-to-riches story, the lone individual who rises from the bottom through pluck and work. The PoCSverse What's the Story? 49 of 82

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"We'll probably need a new national story. Up until now, America's story has been some version of the rags-to-riches story, the lone individual who rises from the bottom through pluck and work. But that story isn't working for people anymore, The PoCSverse What's the Story? 49 of 82

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

"I don't know what the new national story will be,

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

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

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

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

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<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly



Enormous disasters: Fabrications of real experiences.

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<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly



Enormous disasters: Fabrications of real experiences.



Plain old making stuff up: A million little pieces

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<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly

Enormous disasters: Fabrications of real experiences.

> Plain old making stuff up: A million little pieces ... Oprah will get you.

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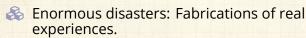
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Plain old making stuff up: A million little pieces 

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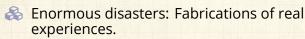
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- Plain old making stuff up: A million little pieces ☑ ... Oprah will get you.
- - Expansive plagiarism: How Opal Mehta Got Kissed, Got Wild, and Got a Life ...

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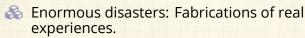
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<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly



- Plain old making stuff up: A million little pieces ✓ ... Oprah will get you.
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  #kudos

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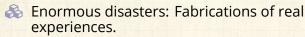
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Plain old making stuff up: A million little pieces ... Oprah will get you.

Wikipedia's has a list of famous fake memoirs ☑.

Expansive plagiarism: How Opal Mehta Got Kissed, Got Wild, and Got a Life ☑. #kudos

Self-plagiarism and more standard badness: Jonah Lehrer .

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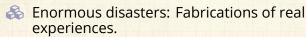
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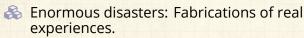
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- Lance Armstrong.



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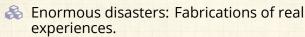
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<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly



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  - Amazingly: Made up Bob Dylan quotes.
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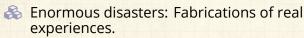
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<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly



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- Self-plagiarism and more standard badness: Jonah Lehrer .
- Amazingly: Made up Bob Dylan quotes.

  Lance Armstrong. Also got to meet Oprah.
- Enormous power: Fiction that speaks to real experiences.

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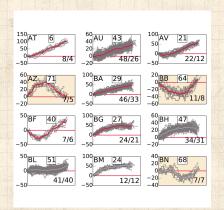
<sup>&</sup>lt;sup>2</sup>Reality is being tested harshly



"The game story space of professional sports: Australian Rules Football"

Kiley, Reagan, Mitchell, Danforth, and Dodds.

Physical Review E, 93, 052314, 2016. [?]



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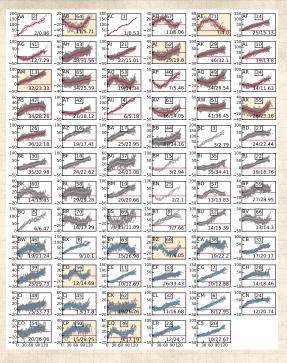
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Sports = Spontaneous story producing systems



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



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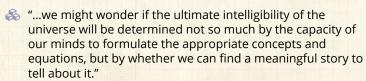
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References

"We use neat stories to explain everything from sports matches to symphonies. Is it time to leave the nursery of the mind?"





### Competitive Punning, The Economist, 2017-08-123:

The guip and the dread

Why English is such a great language for puns

Gamers now even take part in world champunships



Punster pseudonym: "Punder Enlightening"

### Being funny, a grand challenge for AI:



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- "Warning: This paper may cause the reader to groan to death."

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



"The Power of Myth" **3 C** by Campbell and Moyers (1991). [?]



"The Hero with a Thousand Faces" **3** 🗷 by Joseph Campbell (2008). [?]

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



"The Power of Myth" **3 C** by Campbell and Moyers (1991). [?]



"The Hero with a Thousand Faces" **3** by Joseph Campbell (2008). [?]

Highly influential but it's a trap! ☑

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"Save the Cat!" **3 2** by Blake Snyder (2005). [?]



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"Save the Cat!" 3 2 by Blake Snyder (2005). [?]



9 acts.



Someone important to the main characters gets toasted in the second act, blah, blah.

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"Save the Cat!" 3 2 by Blake Snyder (2005). [?]



9 acts.



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Believes irony is key.

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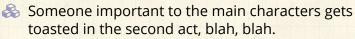
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"Save the Cat!" **3 2** by Blake Snyder (2005). [?]





Believes irony is key.

Logline = one or two sentence summary.

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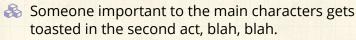
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Logline = one or two sentence summary.

Logline fails to be a summary of logline.

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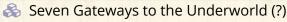


### Seven "good" stories?:



"The Seven Basic Plots: Why We Tell Stories" **3** 🗷

by Christopher Booker (2005). [?]



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

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### The taxonomy of stories:

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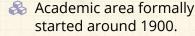
The Woman Marries the Prince 870-879

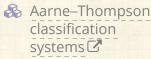
Proofs of FidelitY and Innocence 880-899
The Obstinate Wife Learns to Obey 900-909

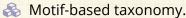
Good Precepts 910-919

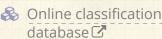
Clever Acts and Words 920-929

### Folkloristics:









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#### "Computational folkloristics"

Abello, Broadwell, and Tangherlini, Communications of the ACM, 55, 60-70, 2012. [?]



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 2), nor does it seem anyone ever will."

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"Computational folkloristics"

Abello, Broadwell, and Tangherlini, Communications of the ACM, **55**, 60–70, 2012. [?]

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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 PoCSverse What's the Story? 59 of 82

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## "The phylogeny of Little Red Riding Hood"

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

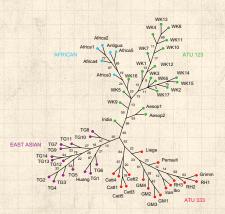


Figure 2. Mighrithy-rules consensus of the most parimonious trees returned by the claditist analysis of the tales. Major groupings are abbieted by region or AUI international type and incidented by reclosered nodes. Sub-types are includent in the stable IRHs – Little Result of Note (An Stap of Gandminder, Catt = Catterinela, Wit = The Wolf and the Kidt, TG = Tiger Gandminder, Variants by particular authors, or from countries/ethnic groups that are discussed in the tent have individual labels. Numbers beside the edges represent the level of support for individual clades returned by the boostrap analysis, doi:10.1101/j.jrunga.000788911.2012

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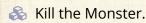
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### The taxonomy of stories:

#### Fundamental arcs:



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### The taxonomy of stories:

#### Fundamental arcs:



Kill the Monster.

Rags to Riches (and Riches to Rags—Metamophosis).

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#### Fundamental arcs:

- & Kill the Monster.
- Rags to Riches (and Riches to Rags—*Metamophosis*).
- Journey/Odyssey: Search for a salvation, a "Holy Grail".

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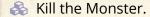
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#### Fundamental arcs:



Rags to Riches (and Riches to Rags—*Metamophosis*).

Journey/Odyssey: Search for a salvation, a "Holy Grail".

Romance.

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What about comedies?

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#### What about comedies?

Comedies are not in themselves a story, but a way of telling stories. The PoCSverse What's the Story? 61 of 82

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Homo narrativus:

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#### Homo narrativus:



Provide dynamic paths and trajectories.

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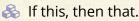
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#### Homo narrativus:



Provide dynamic paths and trajectories.



If this, then that.



Convey and reinforce how to behave, how not to behave.

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#### Homo narrativus:

Provide dynamic paths and trajectories.

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Convey and reinforce how to behave, how not to behave.

Full ecology of stories = Competing, self-defending operating system for people's minds.

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Proverbs as algorithms (hero: Wolfgang Mieder (2):

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A stitch in time saves nine."

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Anti-aphorism: The one who hesitates is lost."



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### Hatchings, Matchings, and Dispatchings



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

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

Hatchings, Matchings, and Dispatchings.



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

Hatchings, Matchings, and Dispatchings.

Stories encode survival algorithms.

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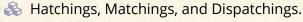
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### The three fundamental events of (non-clone) life:



Stories encode survival algorithms.

Survival algorithms for individuals and groups.



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# 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.



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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.

### Kurt Vonnegut on the shapes of stories ⊞ <a>C</a>



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

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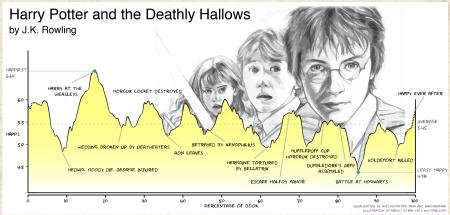
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"The emotional arcs of stories are dominated by six basic shapes"

Reagan, Mitchell, Danforth, Dodds, and Dodds.

EPJ Data Science, 5, 31, 2016. [?]

### Harry Potter and the Trove of Plot Devices



More in PoCS, Vol 2.

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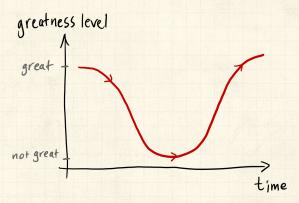
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### Stories matter:



Used by Reagan and Bush in 1980.

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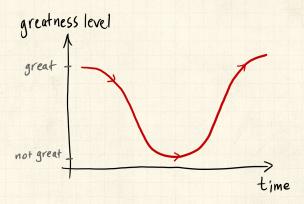
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### Stories matter:



Used by Reagan and Bush in 1980.

Template used by many others including Bill Clinton.

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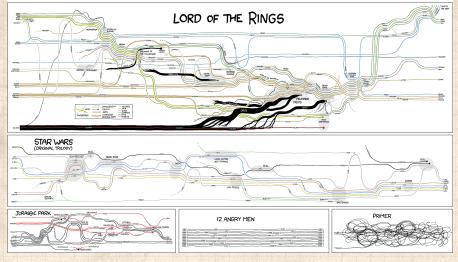
**Emotional Arcs** 

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#### Emotional arcs are not plots. Neither are character paths:

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





# "Plotted: A Literary Atlas" **3** C by Andrew DeGraff (2015). [?]





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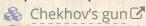
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### Trope inception:



Chekhov's Chekhov's gun

& Chekhov's Chekhov's gun

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Chekhov's Gun

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#### A Science of Stories?

### Stories are everything

🙈 Maybe, yes.

Characters\* + Time.

#### 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 The PoCSverse What's the Story? 72 of 82

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"George Green and physics" Freeman Dyson, Physics World, 6, 33, 1993. [?]



Tool-Driven Scientific Revolutions Scientific revolutions are more often driven by new tools than by new concepts.

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"George Green and physics" Freeman Dyson,
Physics World, **6**, 33, 1993. [?]

"Tool-Driven Scientific Revolutions Scientific revolutions are more often driven by new tools than by new concepts.

Thomas Kuhn in his famous book, The Structure of Scientific Revolutions, talked almost exclusively about concepts and hardly at all about tools. His idea of a scientific revolution is based on a single example, the revolution in the theoretical physics that occurred in the 1920s with the advent of quantum mechanics.

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"George Green and physics" Treeman Dyson,
Physics World, 6, 33, 1993. [?]

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"Tool-Driven Scientific Revolutions Scientific revolutions are more often driven by new tools than by new concepts.

Thomas Kuhn in his famous book, The Structure of Scientific Revolutions, talked almost exclusively about concepts and hardly at all about tools. His idea of a scientific revolution is based on a single example, the revolution in the theoretical physics that occurred in the 1920s with the advent of quantum mechanics.

This was a prime example of a concept-driven revolution. Kuhn's book was so brilliantly written that it became an instant classic. It misled a whole generation of students and historians of science into believing that all scientific revolutions are concept-driven."





"George Green and physics" Freeman Dyson, Physics World, 6, 33, 1993. [?]

The concept-driven revolutions are the ones that attract the most attention and have the greatest impact on the public awareness of science, but in fact they are comparatively rare.

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"The concept-driven revolutions are the ones that attract the most attention and have the greatest impact on the public awareness of science, but in fact they are comparatively rare.

In the last five hundred years we have had six major concept-driven revolutions, associated with the names of Copernicus, Newton, Darwin, Maxwell, Einstein and Freud, besides the quantum-mechanical revolution that Kuhn took as his model.

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"The concept-driven revolutions are the ones that attract the most attention and have the greatest impact on the public awareness of science, but in fact they are comparatively rare.

In the last five hundred years we have had six major concept-driven revolutions, associated with the names of Copernicus, Newton, Darwin, Maxwell, Einstein and Freud, besides the quantum-mechanical revolution that Kuhn took as his model.

During the same period there have been about 20 tool-driven revolutions, not so impressive to the general public but of equal importance to the progress of science."

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"I will not attempt to make a complete list of tool-driven revolutions. Two prime examples are the Galilean revolution resulting from the use of the telescope in astronomy, and the Crick-Watson revolution resulting from the use of X-ray diffraction to determine the structure of big molecules in biology.

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"I will not attempt to make a complete list of tool-driven revolutions. Two prime examples are the Galilean revolution resulting from the use of the telescope in astronomy, and the Crick-Watson revolution resulting from the use of X-ray diffraction to determine the structure of big molecules in biology.

The effect of a concept-driven revolution is to explain old things in new ways. The PoCSverse What's the Story? 75 of 82

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"I will not attempt to make a complete list of tool-driven revolutions. Two prime examples are the Galilean revolution resulting from the use of the telescope in astronomy, and the Crick-Watson revolution resulting from the use of X-ray diffraction to determine the structure of big molecules in biology.

The effect of a concept-driven revolution is to explain old things in new ways.

The effect of a tool-driven revolution is to discover new things that have to be explained." The PoCSverse What's the Story? 75 of 82

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#### Observations/Claims/Questions:

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

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#### 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. The PoCSverse What's the Story? 77 of 82

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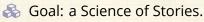
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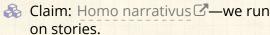
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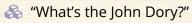


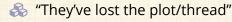
# Understanding the Sociotechnocene—Stories:

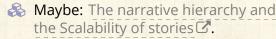


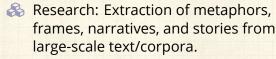


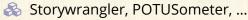












Research: What's the taxonomy of human stories?

Maybe: Stories ↔ Algorithms

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