

Universe Building

Last updated: 2026/09/05, 11:13:42 EDT

DOI:

Principles of Complex Systems, Vols. 1, 2, 3D, 4 Fourever, V for Vendetta

Deliverator: Peter Sheridan Dodds

Showrunner: ↑

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



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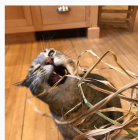
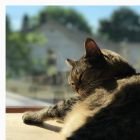
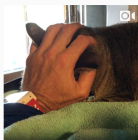
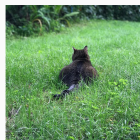
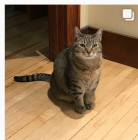
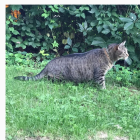
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 On Instagram at [pratchett_the_cat](https://www.instagram.com/pratchett_the_cat) 

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Possible paths:

Build your own interconnected universe



Papers are the essential product.

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Possible paths:

Build your own interconnected universe



Papers are the essential product.



Everything else from social media to books flows out from papers.

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Possible paths:

Build your own interconnected universe

-  Papers are the essential product.
-  Everything else from social media to books flows out from papers.
-  Papers: Aim to be meaningful to others in whatever way.

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Possible paths:

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-  Papers are the essential product.
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-  Shareworthiness: Will people read your paper and share it with others in a positive way that will endure?

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-  Proposals are papers from the adjacent possible.

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-  LaTeX/Beamer: Papers + slides + bibliography.

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-  Proposals are papers from the adjacent possible.
-  LaTeX/Beamer: Papers + slides + bibliography.
-  Deeply live in Unix systems. Linux, Mac, VACC, Silk. The OG Data Science platform.

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Possible paths:

Build your own interconnected universe

 Time is the Big Sort: Prefix work directories with YYYY-MM, smaller scale with YYYY-MM-DD.

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Possible paths:

Build your own interconnected universe

-  Time is the Big Sort: Prefix work directories with YYYY-MM, smaller scale with YYYY-MM-DD.
-  Categorize major areas with directories, projects inside of them.

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Possible paths:

Build your own interconnected universe

- Time is the Big Sort: Prefix work directories with YYYY-MM, smaller scale with YYYY-MM-DD.
- Categorize major areas with directories, projects inside of them.
- Knowledge is a networked hierarchy: Symbolic links.

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Possible paths:

Build your own interconnected universe

-  Time is the Big Sort: Prefix work directories with YYYY-MM, smaller scale with YYYY-MM-DD.
-  Categorize major areas with directories, projects inside of them.
-  Knowledge is a networked hierarchy: Symbolic links.
-  AI, Overleaf, and everything in the cloud: Needs some kind of ordering, taxonomy.

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Possible paths:

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- Time is the Big Sort: Prefix work directories with YYYY-MM, smaller scale with YYYY-MM-DD.
- Categorize major areas with directories, projects inside of them.
- Knowledge is a networked hierarchy: Symbolic links.
- AI, Overleaf, and everything in the cloud: Needs some kind of ordering, taxonomy.
- Create passive work logs, measurements.
`makemanuscript.pl, print_universal.m`

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Possible paths:

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- Knowledge is a networked hierarchy: Symbolic links.
- AI, Overleaf, and everything in the cloud: Needs some kind of ordering, taxonomy.
- Create passive work logs, measurements.
`makemanuscript.pl, print_universal.m`
- Use AI. Thoughtfully. Everything is changing.

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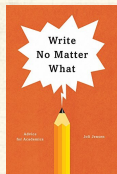
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Three books on writing:



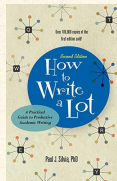
“Write No Matter What: Advice for Academics” [a](#) [↗](#)
by Joli Jensen (2017). ^[4]



Holistic advice for academics, not just writing.



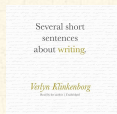
Keys: Project Box, Ventilation.



“How to Write a Lot: A Practical Guide to Productive Academic Writing” [a](#) [↗](#)
by Paul J. Silvia (2018). ^[6]



Get it done.



“Several Short Sentences About Writing” [a](#) [↗](#)
by Verlyn Klinkenborg (2012). ^[5]



Dive in anywhere. Vibes.

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Explore creativity and process outside of your work:

-  Take in anything on how to create anything.
-  Everything  about the Muppets .
-  Translate/copy/test elements as you build/adapt/refine your own processes

- | | | |
|--|---|--|
|  Movies |  Novels |  Policy |
|  TV series |  Gardens |  Sport |
|  Music |  Cooking |  Nature |
|  Comics |  City planning |  ... |
|  Architecture |  Farming | |



Better writing, editing, and thinking through the power of line breaks:



The physical typesetting of writing in books forced the tight paragraph structure with an indent.



Physical constraint became equated with how writing should look.



But: Writing as coding.



L^AT_EX: Organize vertically for thinking and editing.



Each element that could be moved backwards and forwards in writing stands alone in a vertical stack.



Sentences, phrases, mathematical pieces, items, ...



L^AT_EX: textblock structure: [3]

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```
archetypometrics.body.tex<2023-03archetypometrics>
1274 \textbf{Heat maps:}
1275 \item
1276   For all ouisigrams~\cite{dodds2021b},
1277   we use the perceptually uniform colormap 'ice'
1278   for trait space and
1279   'magma' for character space
1280   (per Ref.~\cite{hyng2016a}).
1281 \item
1282   The table colors for traits and characters
1283   are elements of these two colormaps.
1284 \end{textblock}
1285
1286 \subsection{Notation for dimensions, traits, and archetypes}
1287 \label{subsec:archetypometrics.notation}
1288
1289 \begin{textblock}
1290   \item
1291     For all essential dimensions, we have
1292     the standard notation from SVD:
1293   \item
1294      $\hat{\text{traitdimvar}}_{(i)}$ 
1295     for traits
1296     and
1297      $\hat{\text{chardimvar}}_{(i)}$ 
1298     for characters.
1299   \item
1300     To indicate essential directions
1301     (Section~\ref{subsec:archetypometrics.SVD}),
1302     we include a sign.
1303   \item
1304     For example,
1305     we indicate the positive direction
1306     of the first essential dimension
1307     of trait space with
1308   \item
1309      $+\hat{\text{traitdimvar}}_{(1)}$ ,
1310   \item
1311     and
1312   \item
1313     the negative direction of
1314     the third essential dimension of character space
1315   \item
1316     with
1317   \item
1318      $-\hat{\text{chardimvar}}_{(3)}$ .
1319 \end{textblock}
1320
1321 \begin{textblock}
1322   \item
1323     Rarely, we will need variables
1324     representing
1325     traits,
1326     characters,
1327     and
1328     archetypes.
1329   \item
1330     We will use the notation
archetypometrics.body.tex<2023-03archetypometrics> 11% (1286,0) (LaTeX Fly) 11:31AM
Mark set
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 The PoCSverse: <https://pdodds.w3.uvm.edu/pocsverse/> 

 Build graduate classes that are research engines.

 Class projects become papers, help papers along.

P
o
C
S



What's
The
Story?



Figure making:

Every figure is a script



Ideal: Be able to rebuild a paper from one command, including figures.

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Figure making:

Every figure is a script



Ideal: Be able to rebuild a paper from one command, including figures.



At least have the sequence of operations to recorded.

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Figure making:

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Every figure is a script

- 🧱 Ideal: Be able to rebuild a paper from one command, including figures.
- 🧱 At least have the sequence of operations to recorded.
- 🧱 “Never use the mouse.”



Figure making:

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Every figure is a script

- 🧱 Ideal: Be able to rebuild a paper from one command, including figures.
- 🧱 At least have the sequence of operations to recorded.
- 🧱 “Never use the mouse.”
- 🧱 Figure making scripts encode knowledge and understanding.



Figure making:

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- 🧱 Over time, generate reusable structures, modules; a house style.



Figure making:

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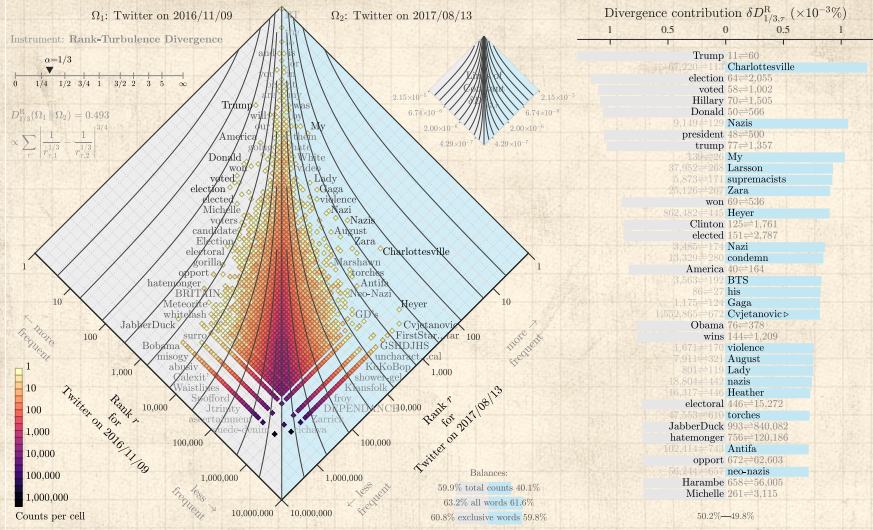
A way

References

Every figure is a script

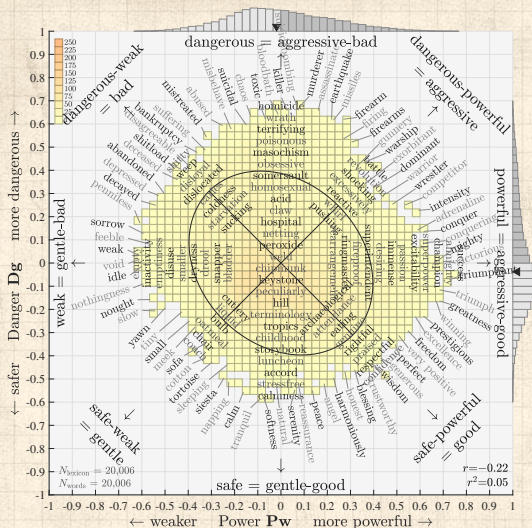
- 🧱 Ideal: Be able to rebuild a paper from one command, including figures.
- 🧱 At least have the sequence of operations to recorded.
- 🧱 “Never use the mouse.”
- 🧱 Figure making scripts encode knowledge and understanding.
- 🧱 Over time, generate reusable structures, modules; a house style.
- 🧱 Following examples are all from scripts.





Allotaxonomy and rank-turbulence divergence: A universal instrument for comparing complex systems [2]

~ Power-Danger ousiogram for the NRC VAD lexicon ~



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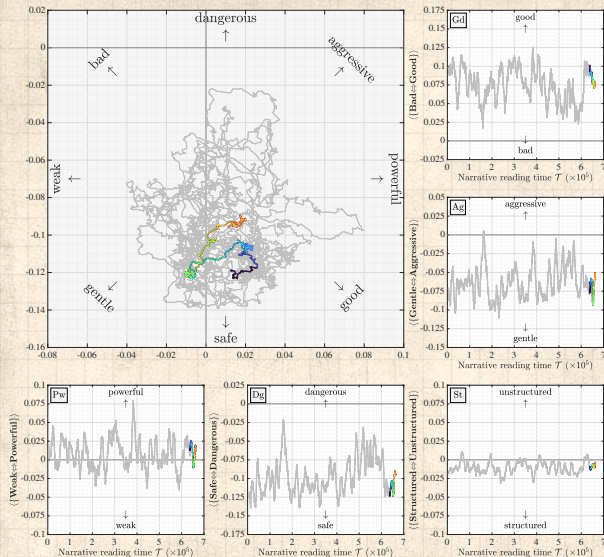
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References



Ousiometrics: The essence of meaning aligns with a power-danger-structure framework instead of valence-arousal-dominance [1]

"Les Misérables" by Victor Hugo (English translation)



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Ousiometrics: The essence of meaning aligns with a power-danger-structure framework instead of valence-arousal-dominance ^[1]





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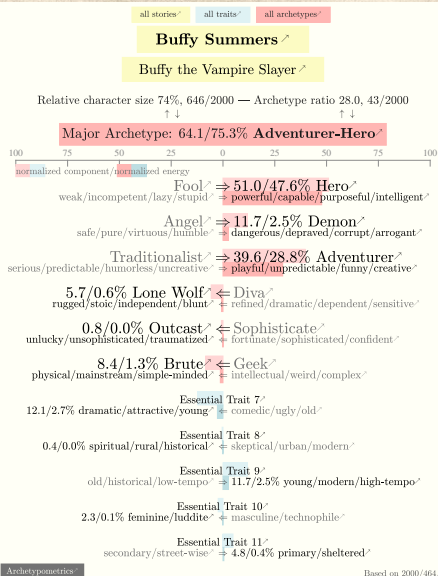
Narrative hierarchy

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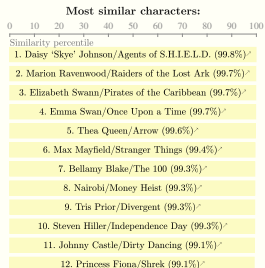
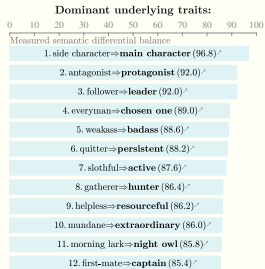
References



Archetypometrics, a Pragmateia: Empirical determination of the fundamental archetypes of fictional characters [3]



Based on 2000/464/341 characters/traits/stories—switch to 800/235/90* or 1600/364/241*

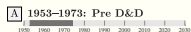


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Alignment chart evolution:



1953–: *Three Hearts and Three Lions*

1961–: *Elric of Melniboné* stories



1971–: *Chainmail* tabletop game



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Alignment chart evolution:



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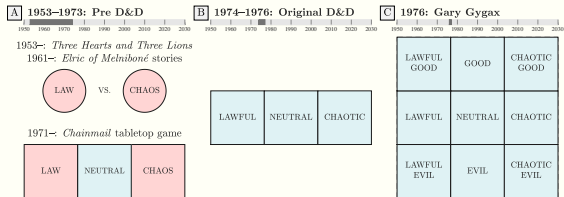
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Alignment chart evolution:



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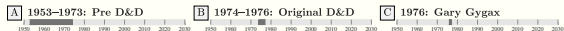
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Alignment chart evolution:



1953–: *Three Hearts and Three Lions*
1961–: *Elric of Melniboné* stories



1971–: *Chainmail* tabletop game

LAW	NEUTRAL	CHAOS
-----	---------	-------

LAWFUL	NEUTRAL	CHAOTIC
--------	---------	---------

LAWFUL GOOD	GOOD	CHAOTIC GOOD
LAWFUL	NEUTRAL	CHAOTIC
LAWFUL EVIL	EVIL	CHAOTIC EVIL



LAWFUL GOOD	GOOD	CHAOTIC GOOD
LAWFUL	NEUTRAL	CHAOTIC
LAWFUL EVIL	EVIL	CHAOTIC EVIL

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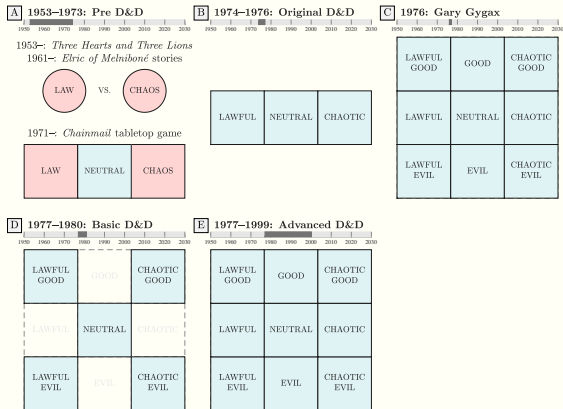
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Alignment chart evolution:



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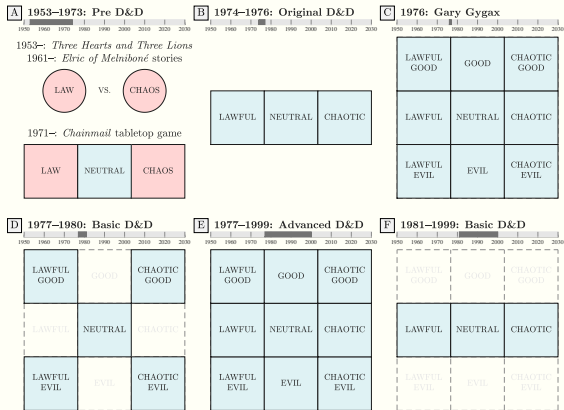
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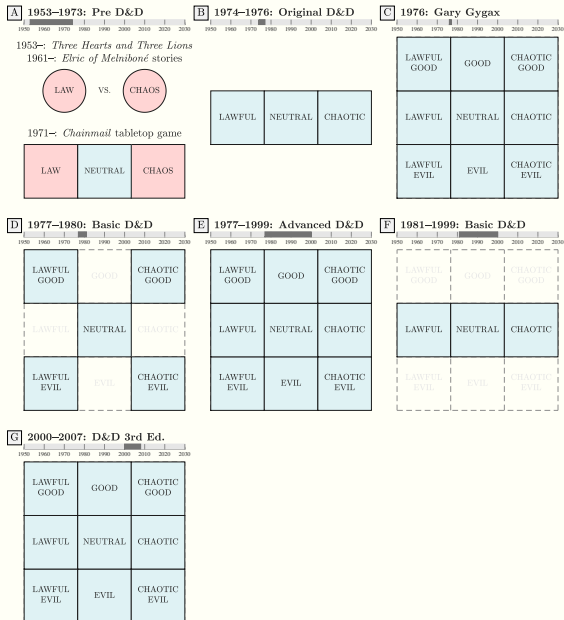
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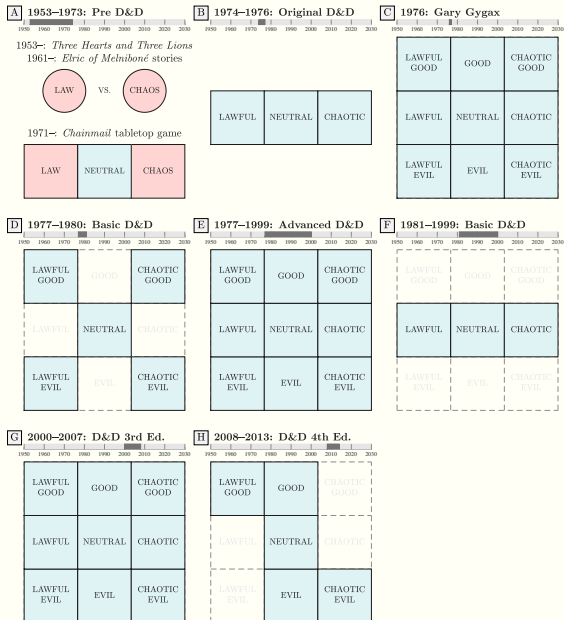
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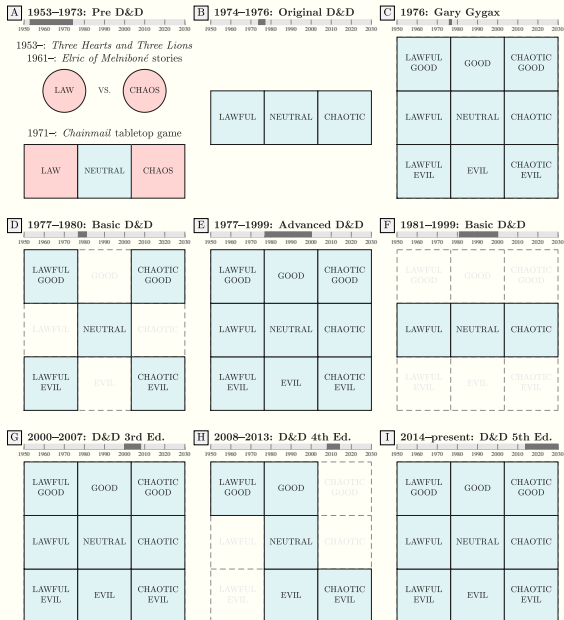
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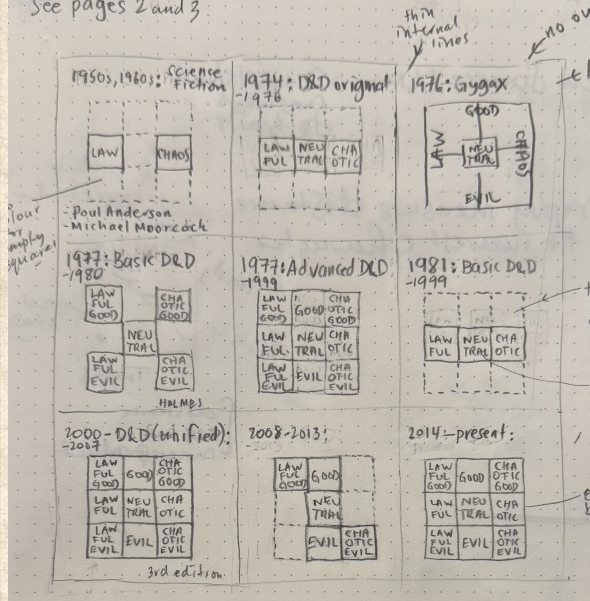
References



Alignment chart evolution—sketch:

D&D alignment evolution

See pages 2 and 3



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Storytelling: Interactive data visualizations

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 Inspiration: Major news outlets: The Economist, NY Times, Financial Times

 Inspiration: The Pudding .

 Happiness: <https://hedonometer.org/> 

 Vonnegut's shapes of stories:

 <https://complexstories.uvm.edu> 

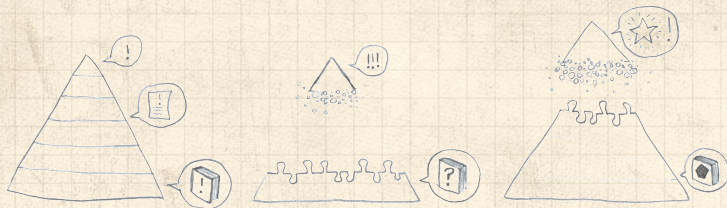
 33,000+ interconnected PDFs:
compstorylab.org/archetypometrics/cards/stories-2000-464-341.pdf 

 The Library of Variably Dangerous Books.¹



¹Truth decay.

The Ten Scales of Stories



The deep knowledge work we must do for two reasons:

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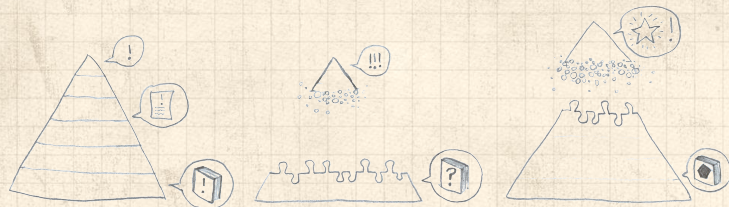
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The Ten Scales of Stories



The deep knowledge work we must do for two reasons:

-  Imperative: Create and deliver research stories at all scales starting at some floor (paper, project, research area).

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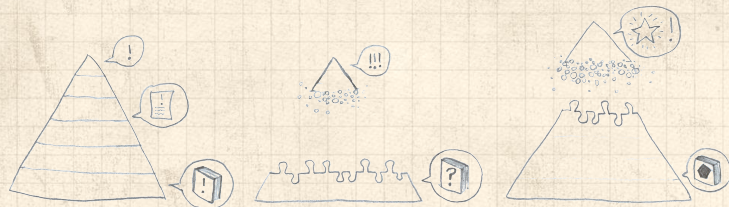
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- 🧱 1. Simply: Critical knowledge creation.

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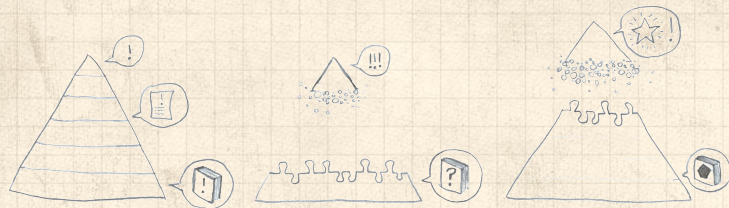
Narrative hierarchy

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References



The Ten Scales of Stories



The deep knowledge work we must do for two reasons:

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-  2. The danger if we do not do this work: Errors, misinformation, disinformation.

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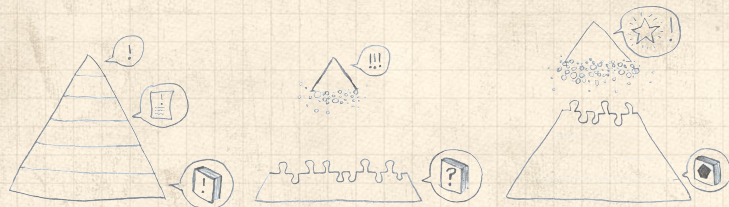
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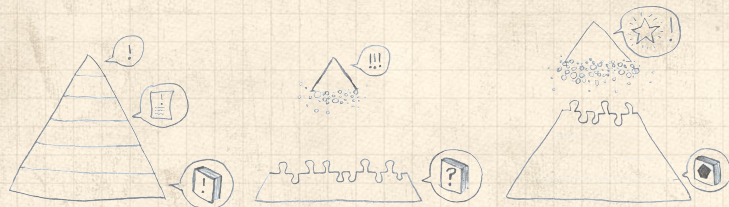
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-  Titles are hard, abstracts are hard, ...

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-  2. The danger if we do not do this work: Errors, misinformation, disinformation.
-  We cannot leave the higher scales of stories to others.
-  Titles are hard, abstracts are hard, ...
-  This is not fluff branding but a fundamental responsibility for scientists.

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The Ten Scales of Stories

Scales 1–3: A few words to a few sentences

1. One to three word encapsulation.

- Soundbites, buzzframes,² slogans, catchphrases, mottos, some maxims.
- E.g., “Coke is it”, “Learned helplessness”, “The Big Bang”, and “Narrative Hierarchy”.

2. One sentence.

- Title, headline, a well crafted tweet, proverbs, aphorisms, epigrams.
- One-liners live here too.
- Good territory for Dorothy Parker and Mark Twain and that fellow who said there was only one thing worse than being talked about.

3. A few sentences.

- The nutshell, a movie's log line ↗, Nautilus's three sentence science ↗.

²**Buzzframe.** Defn (noun): Buzzwords that coherently frame a way of thinking in the listener.



The Ten Scales of Stories

Scales 4–6: A paragraph to a short paper

4. One paragraph.

 An abstract, the lede , the slightly buried nut graph , the elevator pitch, a thirty second television ad, modern movie trailers (which tend to lay out the whole story).

5. One page.

 Standard news article, short magazine article, jokes requiring a very long walk.

6. Short paper.

 Essay, blog post, political speech, the pamphlet, medium magazine article, television news report.



The Ten Scales of Stories

Scales 7–10: A long paper to a universe

7. Long paper.
 -  Book chapter, long magazine article, a movie, episode of a television series.
8. Book.
 -  Something that looks like a book when made physical and placed on a shelf, PhD thesis, a season of a television series.
9. Series of books.
 -  Trilogies including increasingly inaccurately named ones , a full television series (e.g., Buffy, Slayer of Vampires).
10. A large coherent body of work, potentially involving many authors.
 -  Epic sagas, movie franchises, six seasons and a movie, specific research areas, religious scriptures , story universes (the Discworld ).

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Narrative hierarchy:

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“Any good idea can be stated in fifty words or less.”

—Stanisław Ulam ³



³At the very least, Ulam's claim is self-consistent.

Burn down the Narrative Hierarchy, burn it all down:

Borges:

Writing long books is a laborious and impoverishing act of foolishness:

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Burn down the Narrative Hierarchy, burn it all down:

Borges:

Writing long books is a laborious and impoverishing act of foolishness:

expanding in five hundred pages an idea that could be perfectly explained in a few minutes.

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Burn down the Narrative Hierarchy, burn it all down:

Borges:

Writing long books is a laborious and impoverishing act of foolishness:

expanding in five hundred pages an idea that could be perfectly explained in a few minutes.

A better procedure is to pretend that those books already exist and to offer a summary, a commentary.

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Also Borges, The Secret Miracle:⁴



⁴“El milagro secreto,” 1943, in Ficciones

Also Borges, The Secret Miracle:⁴

“As all writers,



⁴“El milagro secreto,” 1943, in Ficciones

Also Borges, The Secret Miracle:⁴

“As all writers,
he judged others based on what they had produced,



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Also Borges, The Secret Miracle:⁴

“As all writers,
he judged others based on what they had produced,
and hoped that they would judge him based on



⁴“El milagro secreto,” 1943, in Ficciones

Also Borges, *The Secret Miracle*:⁴

“As all writers,
he judged others based on what they had produced,
and hoped that they would judge him based on
what he had still planned”



⁴“El milagro secreto,” 1943, in *Ficciones*

The absolute basics of basic science:⁵

Computational science in three back and forth steps:

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The absolute basics of basic science:⁵

Computational science in three back and forth steps:

1. Find meaningful+important+interesting phenomena, (optionally) involving spectacular amounts of data that you either put together or obtain from the back of a truck.

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The absolute basics of basic science:⁵

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1. Find meaningful+important+interesting phenomena, (optionally) involving spectacular amounts of data that you either put together or obtain from the back of a truck.
2. Describe what you see.

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Taste matters. Develop taste in research.

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Beware your assumptions: Don't use tools/models because they're there, or because everyone else does ...

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If you succeed at 1–3:

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If you succeed at 1–3:

4. Create.

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The absolute basics of basic science:⁵

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2. Describe what you see.
3. Explain it.

Taste matters. Develop taste in research.

Beware your assumptions: Don't use tools/models because they're there, or because everyone else does ...

If you succeed at 1–3:

4. Create.
5. Share.

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2. Describe what you see.
3. Explain it.

Taste matters. Develop taste in research.

Beware your assumptions: Don't use tools/models because they're there, or because everyone else does ...

If you succeed at 1–3:

4. Create.
5. Share.

Always: Be good people.

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Time:



Time:



Time is primary.



⁶Ancient app: eternity

Time:



Time is primary.



Be careful and protective of future time.



⁶Ancient app: eternity

Time:

- Time is primary.
- Be careful and protective of future time.
- An experiment: Record what you spend your time.
Just log time and examine what you do.



⁶Ancient app: eternity

Time:

- Time is primary.
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- An experiment: Record what you spend your time.
Just log time and examine what you do.
- Build a taxonomy.⁶ Not what you planned to do, what you did.



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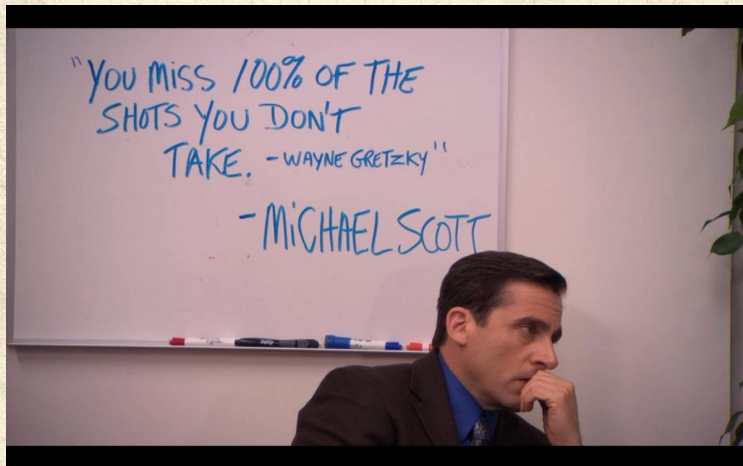
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- Time is primary.
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- An experiment: Record what you spend your time.
Just log time and examine what you do.
- Build a taxonomy.⁶ Not what you planned to do, what you did.
- Become very, very good at saying No.
- Look after your whole self: physically, psychologically, socially, ...



⁶Ancient app: eternity



Build your own Universe:

❏ Copying a full system is a mistake.

❏ The power is in your process, your work

“Never Give Up, Never Surrender”



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