

In Medias Res

Last updated: 2022/08/28, 08:26:02 EDT

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

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References

Prof. Peter Sheridan Dodds | @peterdodds

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



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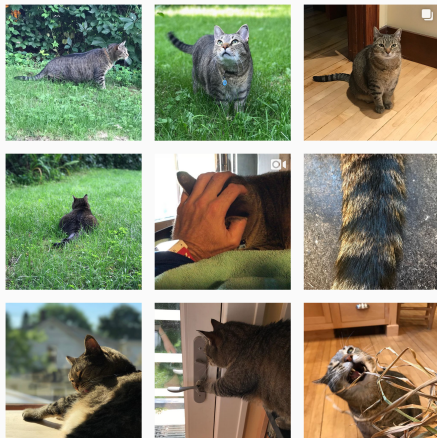
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 On Instagram at [pratchett_the_cat](https://www.instagram.com/pratchett_the_cat) 



Outline

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A confusion of contagions:

- ☎ Did Harry Potter spread like a virus?
- ☎ Can disinformation be “infectious”?
- ☎ Suicide, Violence, Stupidity?
- ☎ Morality? Evil? Laziness? Stupidity? Happiness?
- ☎ Religion?
- ☎ Democracy ...?
- ☎ Language? The alphabet? ^[1]
- ☎ Stories?



For novel diseases:

1. Can we predict the size of an epidemic?
2. How important is the reproduction number R_0 ?

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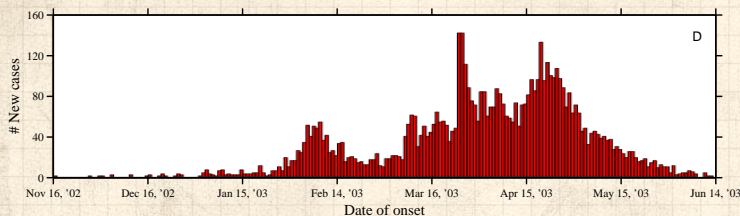
R_0 approximately same for all of the following:

-  1918-19 "Spanish Flu" ~ 75,000,000 world-wide, 500,000 deaths in US.
-  1957-58 "Asian Flu" ~ 2,000,000 world-wide, 70,000 deaths in US.
-  1968-69 "Hong Kong Flu" ~ 1,000,000 world-wide, 34,000 deaths in US.
-  2003 "SARS Epidemic" ~ 800 deaths world-wide.






Resurgence—example of SARS

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-  Epidemic slows...
then an infective moves to a new context.
-  Epidemic discovers new 'pools' of susceptibles:
Resurgence.
-  **Importance of rare, stochastic events.**



Mistake 2:

Seeing success is 'due to social' and
wanting to say 'all your interactions are
belong to us'

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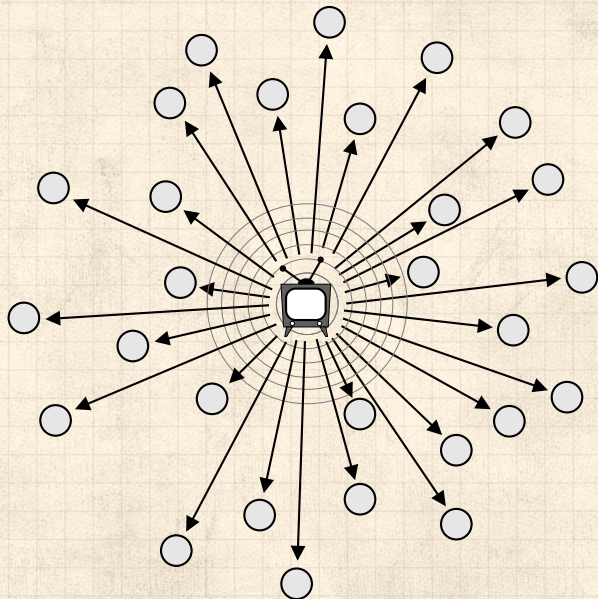


The hypodermic model of influence:

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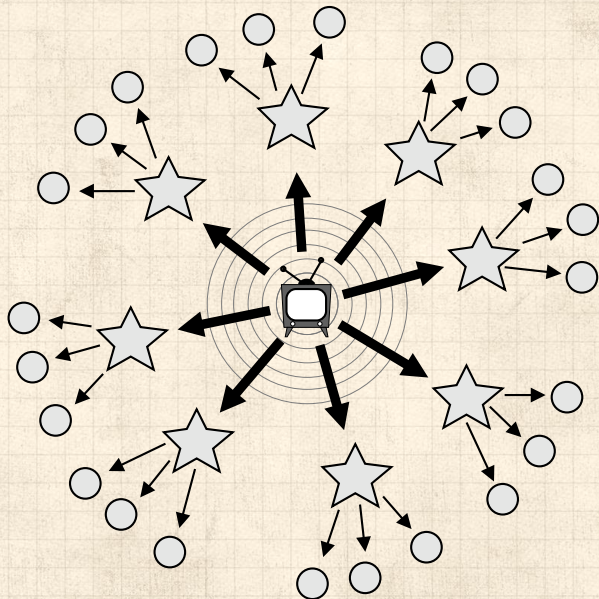


The two step model of influence: [2]

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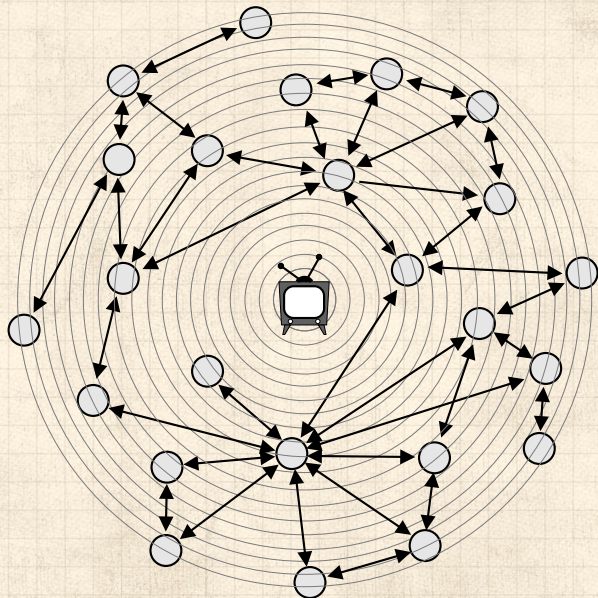


The network model of influence:

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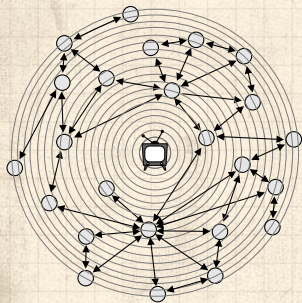
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How superspreading works:

Many interconnected, average, trusting people must benefit from both **receiving** and **sharing** a message far from its source.

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“Influentials, Networks, and Public Opinion Formation” 

Watts and Dodds,
J. Consum. Res., **34**, 441–458, 2007. ^[3]



And of course:

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A special thing has happened:

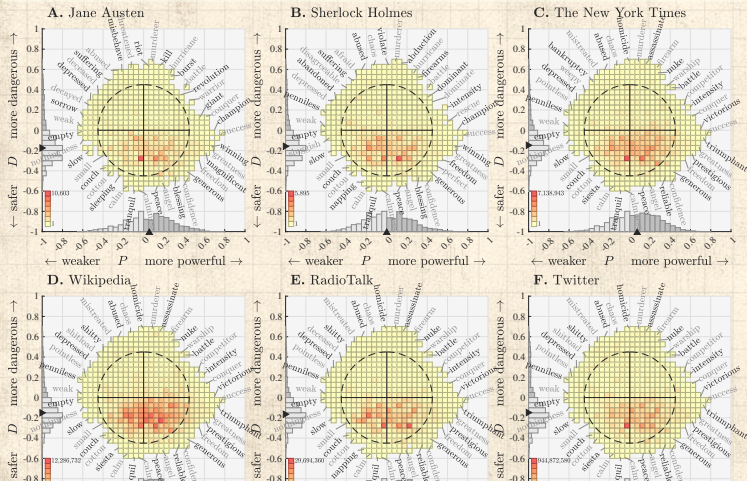
🧱 The PDS framework emerged only from analyzing a lexicon (types).

🧱 Applying PDS framework to disparate corpora (tokens) reveals a linguistic 'safety bias'.

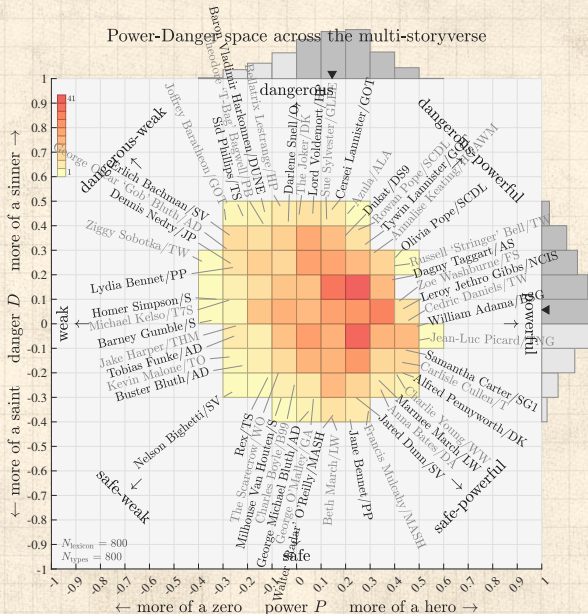
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800 characters, 200+ semantic differentials:



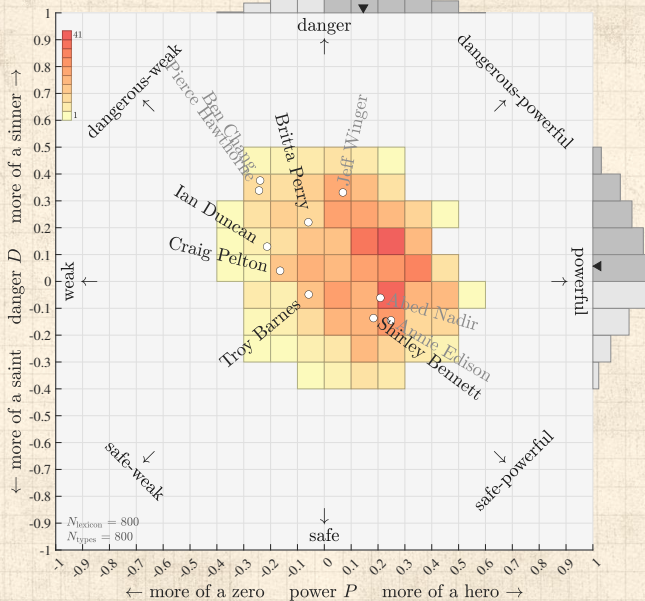
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Power-Danger space for Community

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A few fictional characters most like Pratchett the Cat:


1. Elizabeth Swann (Pirates of the Caribbean): 83%
2. Daenerys Targaryen (Game of Thrones): 82%
3. Margaery Tyrell (Game of Thrones): 82%
4. Francisco d'Anconia (Atlas Shrugged): 82%
5. Dr. Hannibal Lecter (Hannibal): 82%
6. Audrey Horne (Twin Peaks): 81%
7. Princess Anna Karenina (Anna Karenina): 81%
8. Danny Ocean (Ocean's 11): 81%
9. Ragnar Lothbrok (Vikings): 81%
10. Olenna Tyrell (Game of Thrones): 80%

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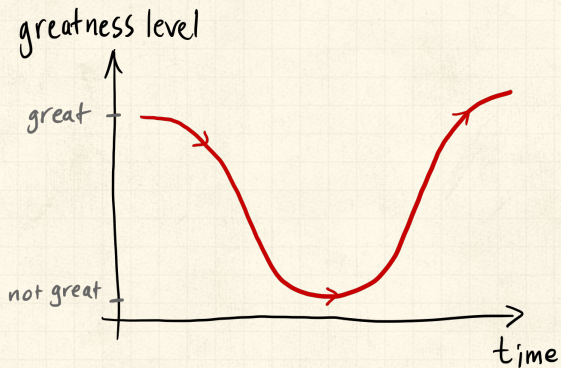


Some fictional characters most like the Deliverator:

1. Ava (Ex Machina): 89%
2. Dolores Abernathy (Westworld): 87%
3. Dom Cobb (Inception): 86%
4. Maeve Millay (Westworld): 84%
5. Patrick Jane (The Mentalist): 84%
6. [Wyldestyle](#)  (The Lego Movie): 84%
7. Daisy 'Skye' Johnson (Agents of S.H.I.E.L.D.): 84%
8. Black Widow (Marvel Cinematic Universe): 83%
9. Elizabeth Swann (Pirates of the Caribbean): 83%
10. Jason Bourne (The Bourne Identity): 83%
11. Mystique (X-Men): 83%
12. Juliana Crain (The Man in the High Castle): 83%
13. Arya Stark (Game of Thrones): 82%
14. Gamora (Marvel Cinematic Universe): 82%
15. Sherlock Holmes (Elementary): 82%



Stories matter:



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About 100 days earlier in the PoCSverse ...



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References



References I

- [1] J. Gleick.
The Information: A History, A Theory, A Flood.
Pantheon, 2011.
- [2] E. Katz and P. F. Lazarsfeld.
Personal Influence.
The Free Press, New York, 1955.
- [3] D. J. Watts and P. S. Dodds.
Influentials, networks, and public opinion
formation.
Journal of Consumer Research, 34:441–458, 2007.
[pdf](#) 