

# In Medias Res

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

Midseason Finale

References

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Computational Story Lab | Vermont Complex Systems Center  
Vermont Advanced Computing Core | University of Vermont



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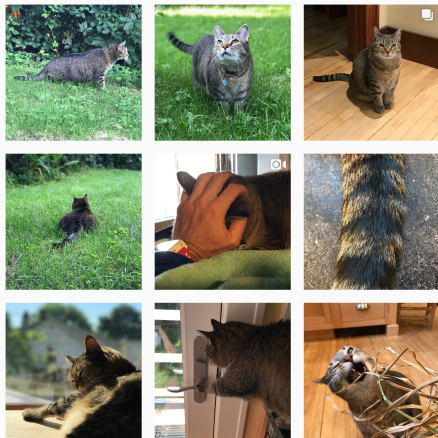
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 On Instagram at [pratchett\\_the\\_cat](https://www.instagram.com/pratchett_the_cat) 



# 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?<sup>[1]</sup>
- Stories?





## For novel diseases:

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

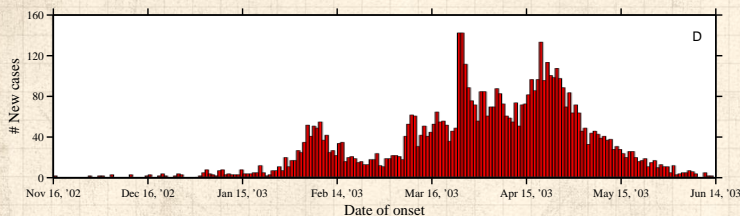
$R_0$  approximately same for all of the following:

-  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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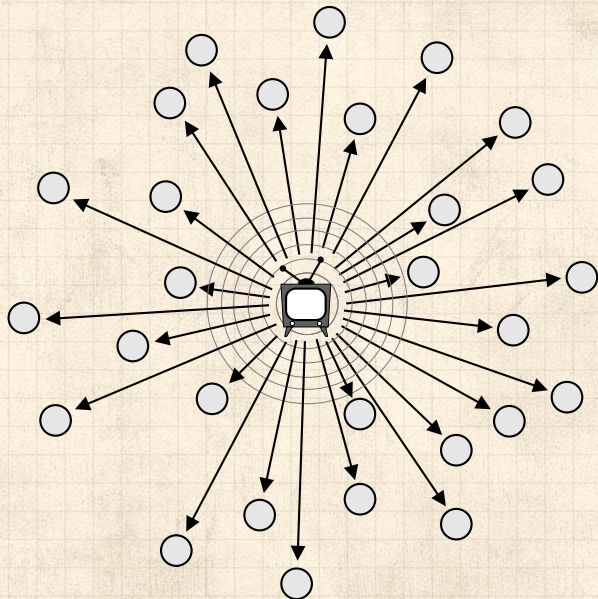


# The hypodermic model of influence:

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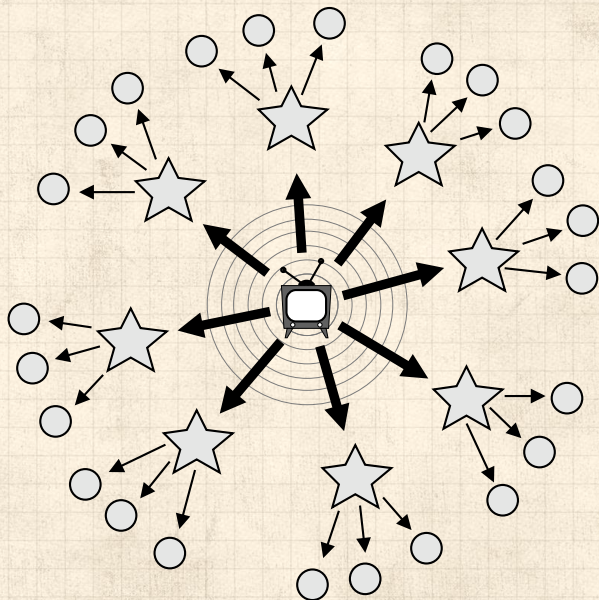




# The two step model of influence: [3]

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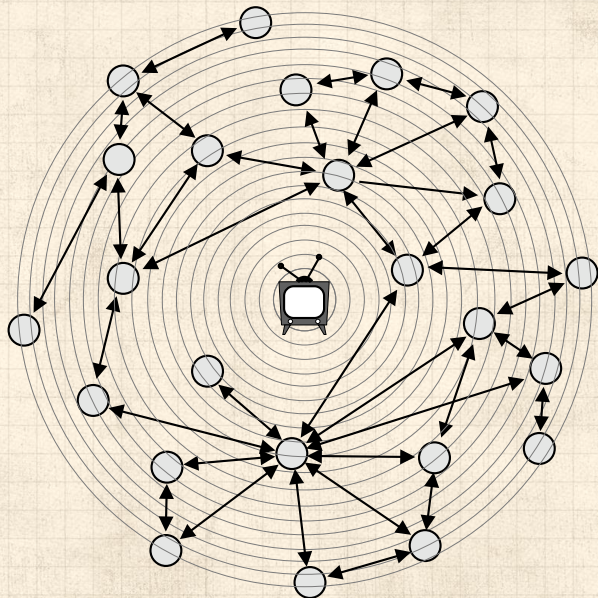
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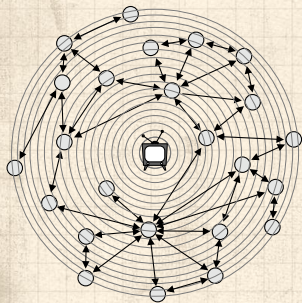
# The network model of influence:

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# The network model of influence:




## 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. <sup>[4]</sup>



And of course:

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References







How we got here: It's going to be tropes all the way down 📺



# 100 days earlier in the PoCSverse ...



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References



The dynamics of course reviews 



# References I

- [1] J. Gleick.  
The Information: A History, A Theory, A Flood.  
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- [2] D. Harmon, R. Ridley, and J. Rolland.  
Look Who's Purging Now, 2015.
- [3] E. Katz and P. F. Lazarsfeld.  
Personal Influence.  
The Free Press, New York, 1955.
- [4] D. J. Watts and P. S. Dodds.  
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