


HOW DO WE KNOW?

Joana Gonçalves de Sá
Social Physics and Complexity
SPAC -LIP

- Why do we care?
- How do we decide?
- How do we know?
- How can we be sure?


 February 7 at 1:00 PM · 🌐

Hay naku ! So it's been around then ? 😞 & How did they know about a Virus we knew nothing about ? 😞 Well ,This is definitely a Government Conspiracy lysol labels as proof the government knew in advance about the Corona virus .

Corona Virus is nothing new.



The dumbest video ever

<https://www.youtube.com/watch?v=0MY8UAiT4e8>

The second dumbest video ever

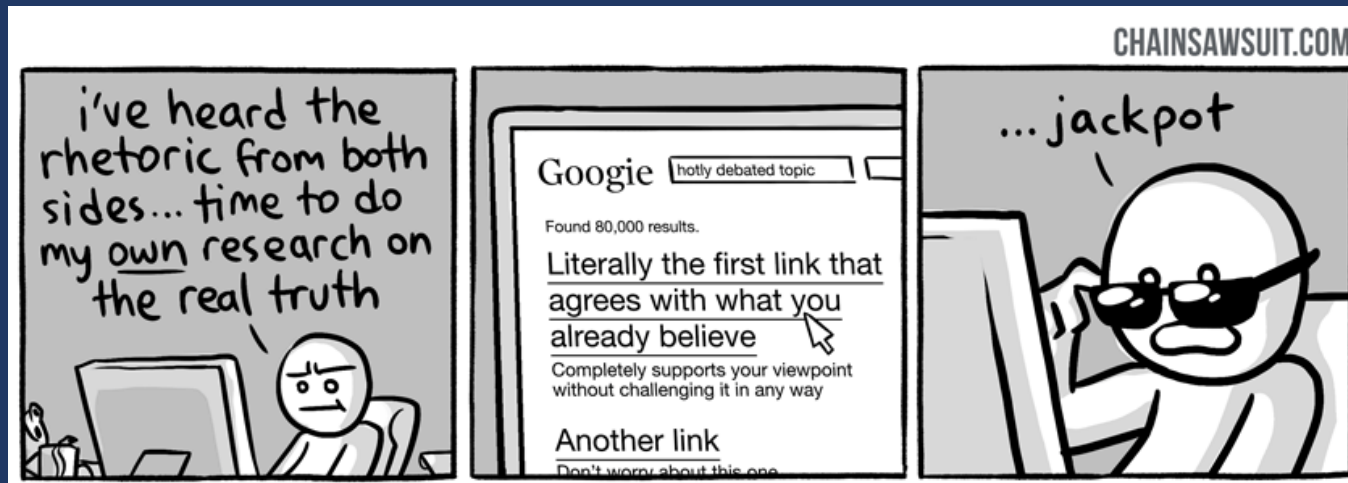
<https://www.youtube.com/shorts/bvXfFRdXyLY>

- **QUESTION**
- **KNOWLEDGE**

Confirmatory tendencies

The human understanding when it has once adopted an opinion ... draws all things else to support and agree with it. And though there be a greater number and weight of instances to be found on the other side, yet these it either neglects and despises ... in order that by this great and pernicious predetermination the authority of its former conclusions may remain inviolate. –

Francis Bacon, Novum Organum, 1620



- **QUESTION**
- **KNOWLEDGE**
- **HUMILITY**

1854 UK cholera outbreak

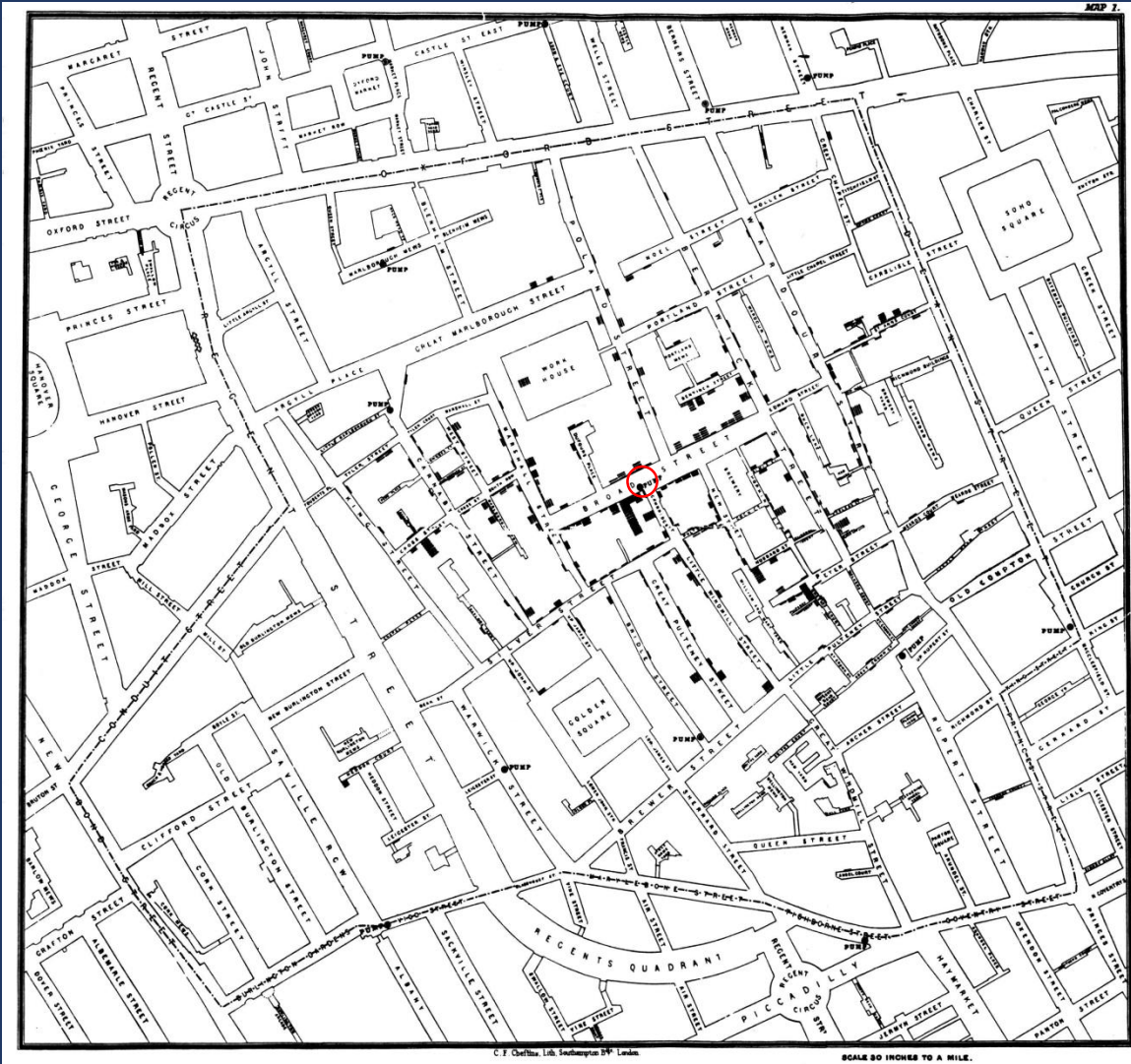
Miasma

Germ



- **QUESTION**
- **KNOWLEDGE**
- **HUMILITY**
- **SYSTEM**

1854 Broad Street cholera outbreak



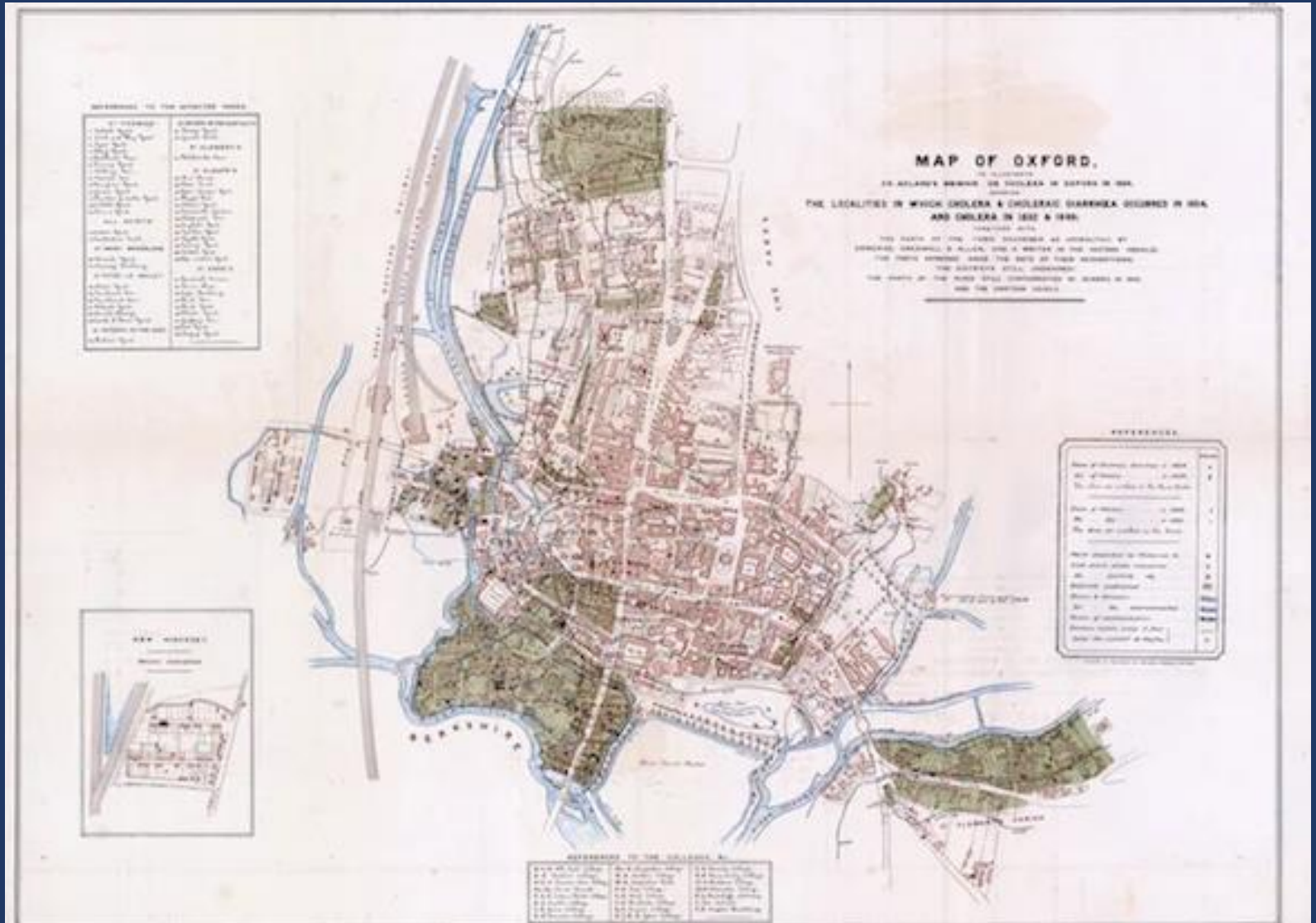
1854 UK cholera outbreak

Miasma

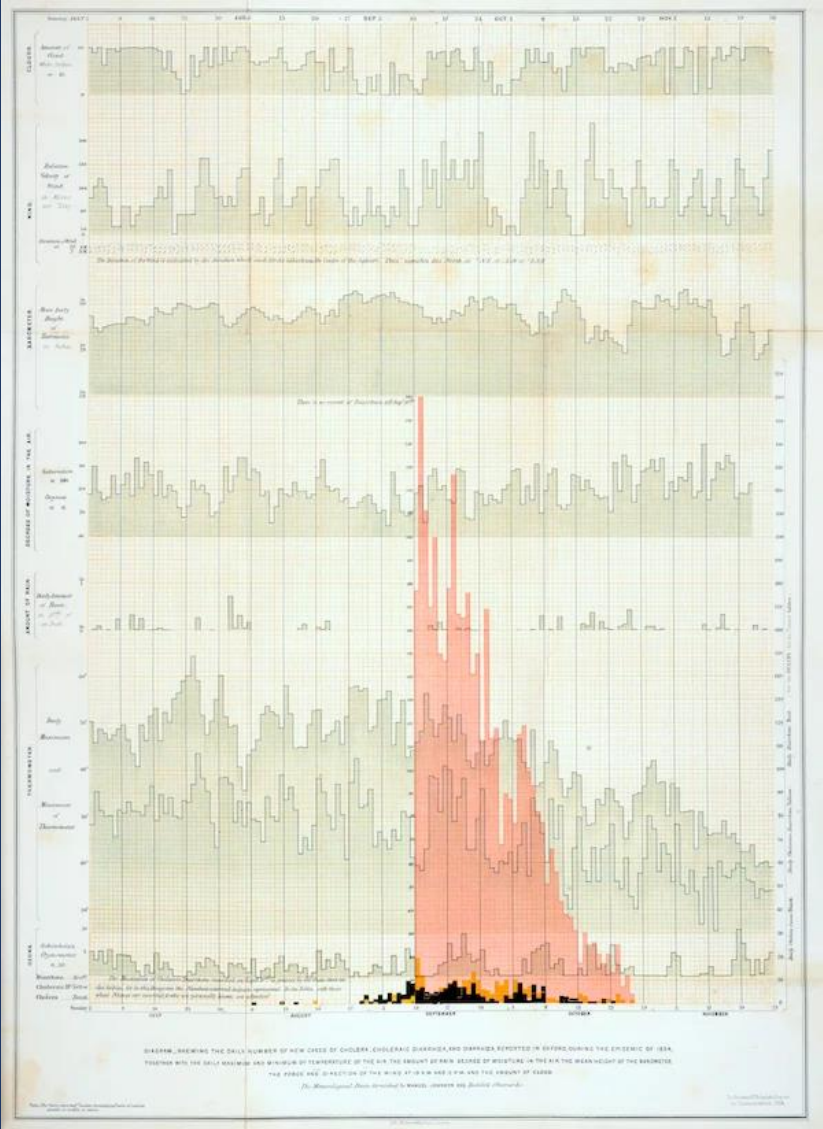


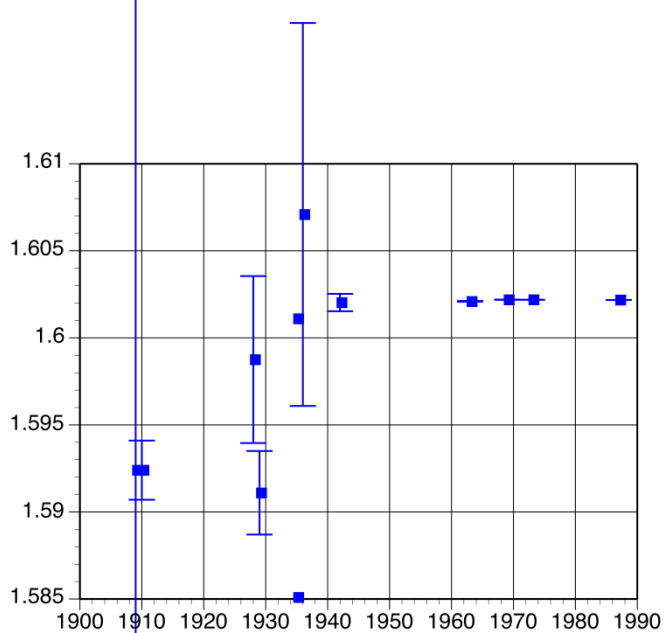
Germ

In many cases a **single house has a supply different from that on either side**. Each company supplies both **rich and poor**, both **large houses and small**; there is no difference in the condition or occupation of the persons receiving the water of the different companies. (...) it is obvious that **no experiment could have been devised** which would more thoroughly test the effect of water supply on the progress of Cholera than this, which circumstances placed ready made before the observer. The experiment too, was on the **grandest scale**. No fewer than **three hundred thousand people of both sexes, of every age and occupation, and of every rank and station, from gentlefolks down to the very poor, were divided into two groups without their choice, and, in most cases, without their knowledge**; one group being supplied water containing the sewage of London, and amongst it, whatever might have come from the cholera patients, the other group having water quite free from such impurity.



Henry Wentworth Acland's map of the cholera outbreak in Oxford
 Credit: Princeton University Library





- Millikan (notebooks)
- Millikan (published)
- Erik Backlin, Nature 1929 [Birge, 1929]
- Backlin and Flemberg, Nature 1936
- Backlin and Flemberg, cited in HR Robinson RPP 1937
- Gunnar Kellström PR 1936 [Birge, 1942]
- [Dummond and Cohen, 1963]
- [Taylor et al, 1969]
- [Cohen and Taylor, 1973]
- [Cohen and Taylor, 1987]

We have learned a lot from experience about **how to handle some of the ways we fool ourselves.**

(...) Millikan measured the charge on an electron by an experiment with falling oil drops, and got an answer which we now know not to be quite right. It's a little bit off because he had the incorrect value for the viscosity of air. It's interesting to look at the history of measurements of the charge of an electron, after Millikan. If you plot them as a function of time, you find that one is a little bit bigger than Millikan's, and the next one's a little bit bigger than that, and the next one's a little bit bigger than that, until finally they settle down to a number which is higher.

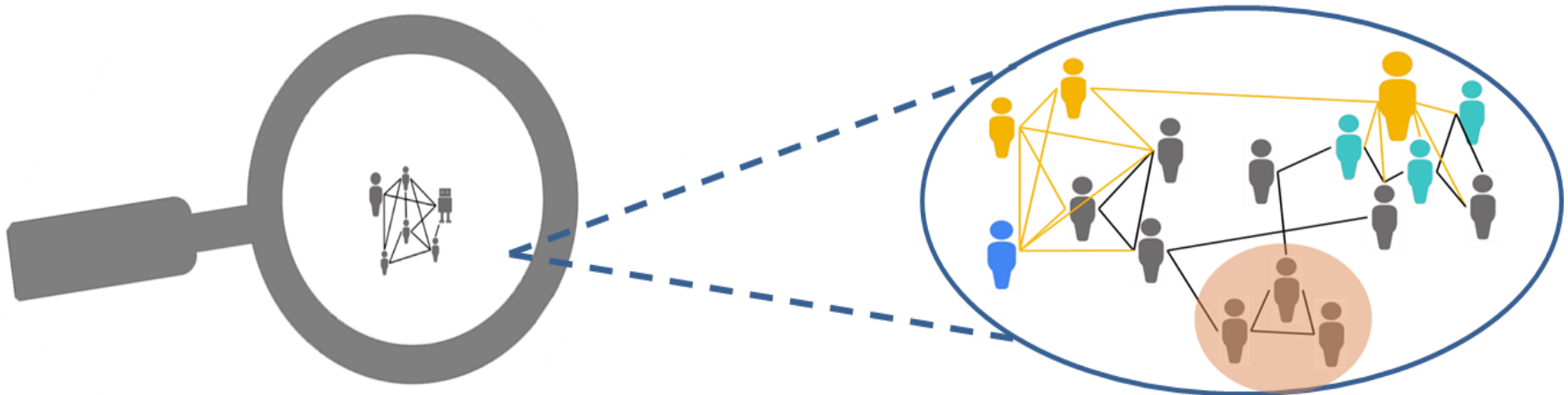
Why didn't they discover the new number was higher right away? It's a thing that scientists are ashamed of—this history—because it's apparent that people did things like this: When they got a number that was too high above Millikan's, they thought something must be wrong—and they would look for and find a reason why something might be wrong. When they got a number close to Millikan's value they didn't look so hard. And so they eliminated the numbers that were too far off, and did other things like that”

- **QUESTION**
- **KNOWLEDGE**
- **HUMILITY**
- **SYSTEM**
- **REPEAT, IMPROVE**

- Why do we care?
- How do we decide?
- How do we know?
- How can we be sure?

The best possible explanation (with what we know)





Computers

Multidisciplinary teams

Ethics

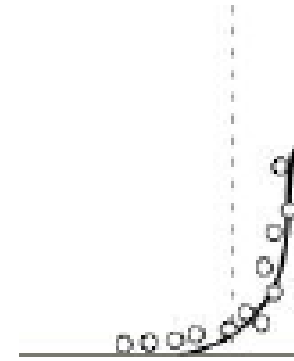
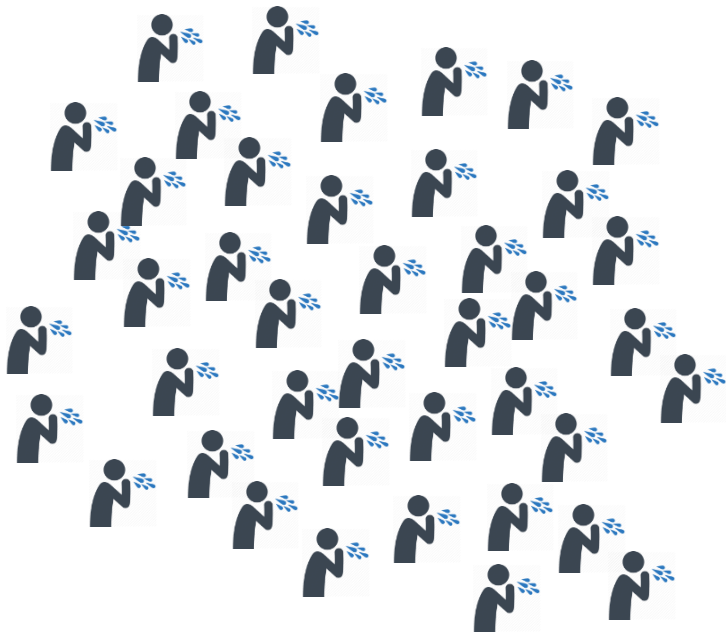
And you will read this at the end



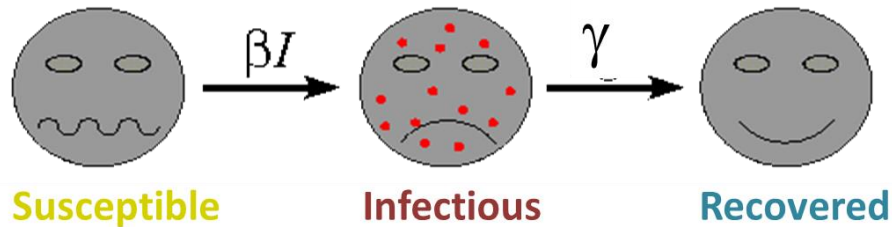
**You will read
this first**

And then you will read this

Then this one



Fever Cough Cold
Tamiflu
Nose Flu

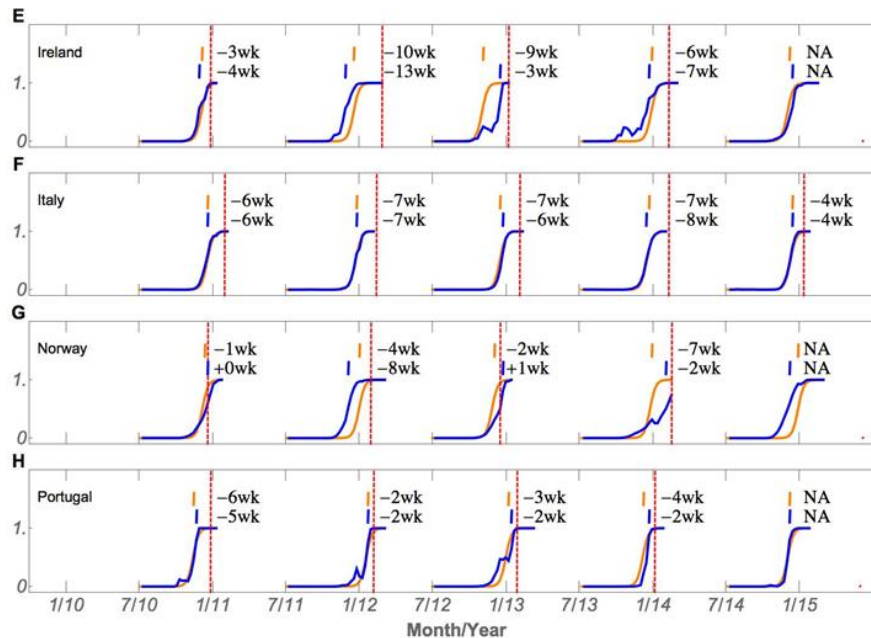


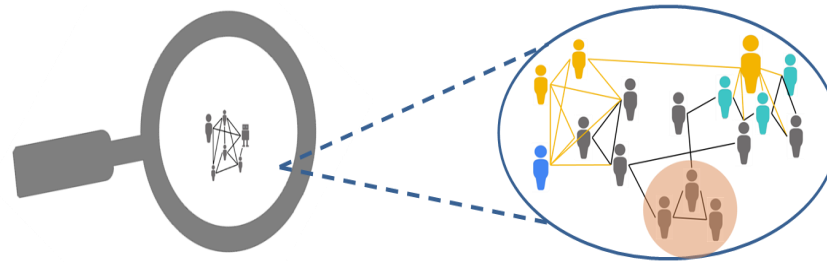
$$\frac{dS}{dt} = -\frac{\beta SI}{N}$$

$$\frac{dI}{dt} = \frac{\beta SI}{N} - \gamma I$$

$$\frac{dR}{dt} = \gamma I$$

$$\beta(t) = \gamma + \frac{A}{1 + \exp -(t - t_0)}$$





February 7 at 1:00 PM · 🌐

Hay naku ! So it's been around then ? 😞 & How did they know about a Virus we knew nothing about ? 😞 Well ,This is definitely a Government Conspiracy lysol labels as proof the government knew in advance about the Corona virus .

Corona Virus is nothing new.

WE CREATED A
MACROSCOPE



WE NEED TO
LEARN HOW TO
USE IT

OBRIGADA

socialcomplexity.eu

joanagsa@lip.pt

@mjoanasa

@spac_lab