

The future of science

Andrea Saltelli

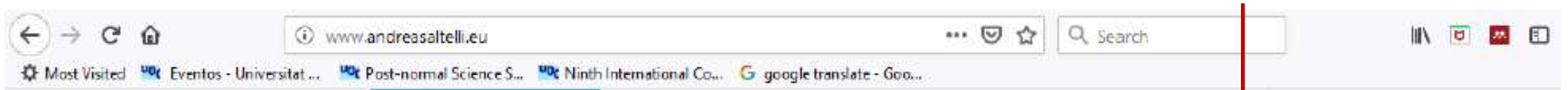
Centre for the Study of the Sciences and the Humanities (SVT),
University of Bergen (UIB), and Open Evidence Research, Open
University of Catalonia



Science – Post-Normal Perspectives
Jerry Ravetz at 90, Oxford, Oxford Martin School,
May 31, 2019



Where to find this talk: www.andreasaltelli.eu



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Tweets by @AndreaSaltelli

andrea saltelli @AndreaSaltelli
Nice piece but ... is Harari a doomsayer? 🤔

Tech C.E.O.s Are in Love With Their Principal Doomsayer nyti.ms/2yZjbm3



Tech C.E.O.s Are in Love With Their Prin...
The futurist philosopher Yuval Noah Hara...
nytimes.com

2h

Jerry's points

Is science's institutional culture, including its official self-image as a special sort of activity, about to be further eroded?

Do we believe that scientists are imbued with some special virtue?

Jerry's points

Will the proletarianisation of the researchers, themselves becoming part of the gig economy – lead to a bifurcation of the community?

Jerry's points

Given that governments and even industries can continue to function somehow while being seriously corrupt, why couldn't science get away with it too?

Is science being dragged into culture wars or is science fomenting the same wars?

Previous episodes: There is a crisis in the quality control of science which won't be fixed soon

Science's establishment between denial & technical fixes

PNS predicted and diagnosed the crisis in all its dimension

Andrea Saltelli, Silvio Funtowicz, 2017, What is science's crisis really about? FUTURES, Volume 91, Pages 5-11; Andrea Saltelli, 2018, Why science's crisis should not become a political battling ground, FUTURES, vol. 104, p. 85-90.

Today, all that is controversial and relevant ...
operates simultaneously in science, technology,
economics, law and policy...

Diseases old and new are the occasion for new
battles in which science, ideology and special
interests collide

COMMENT • 21 MAY 2019

Views from a continent in flux



Nature asked nine leading Europeans to pick their top priority for science at this pivotal point. Love, money, and trust got most votes.

Social media gives this cocktail unprecedented reach and acceleration.

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There was once upon a time
an interface between science,
policy and technology

This is no longer an interface.
It has filled all the available
space...



...permeating all discussions
on human condition

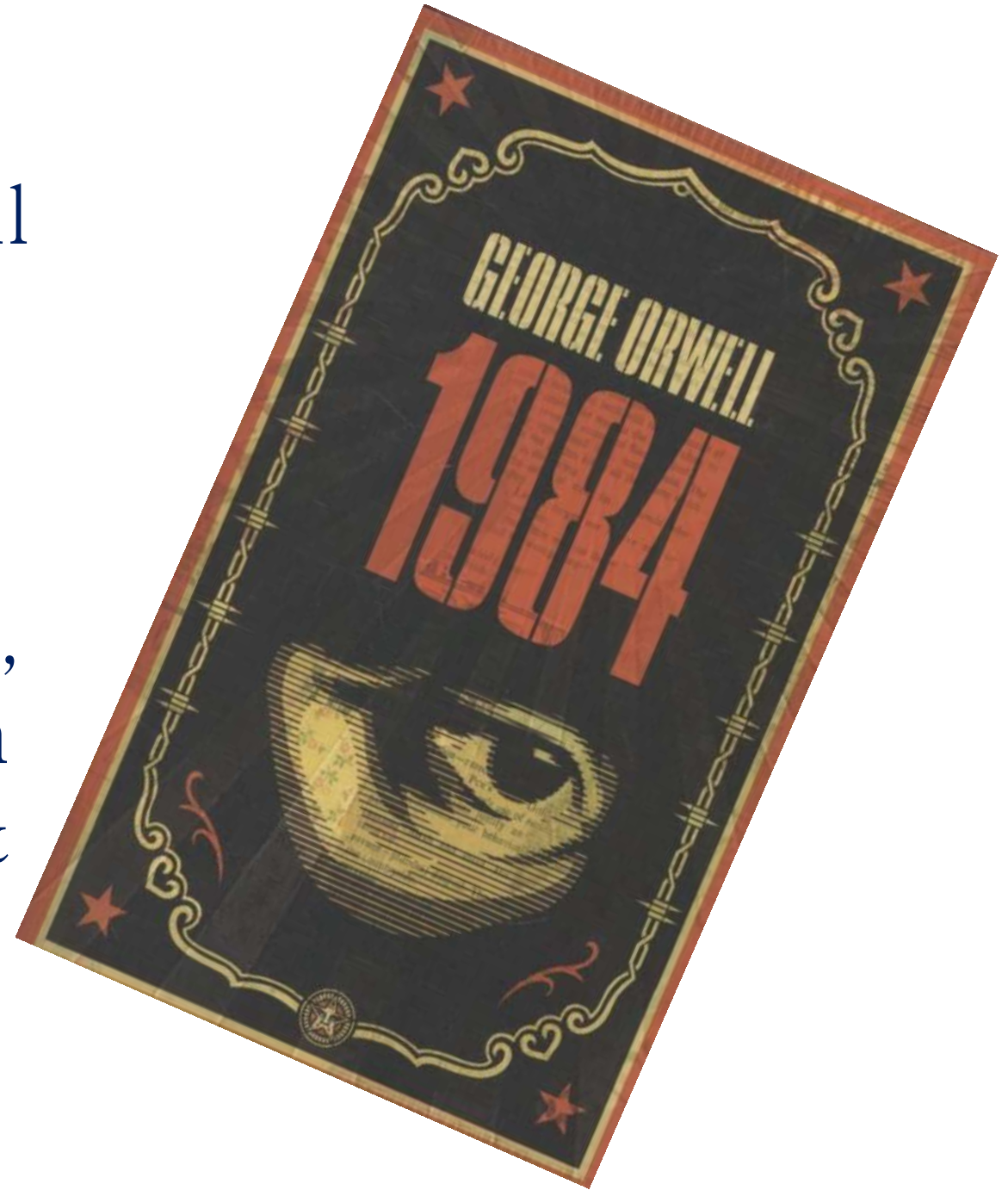
Majone, G. Evidence, argument, and persuasion in the policy process. Yale University Press, 1989.

Whose dystopia:
Huxley or Orwell?



George Orwell

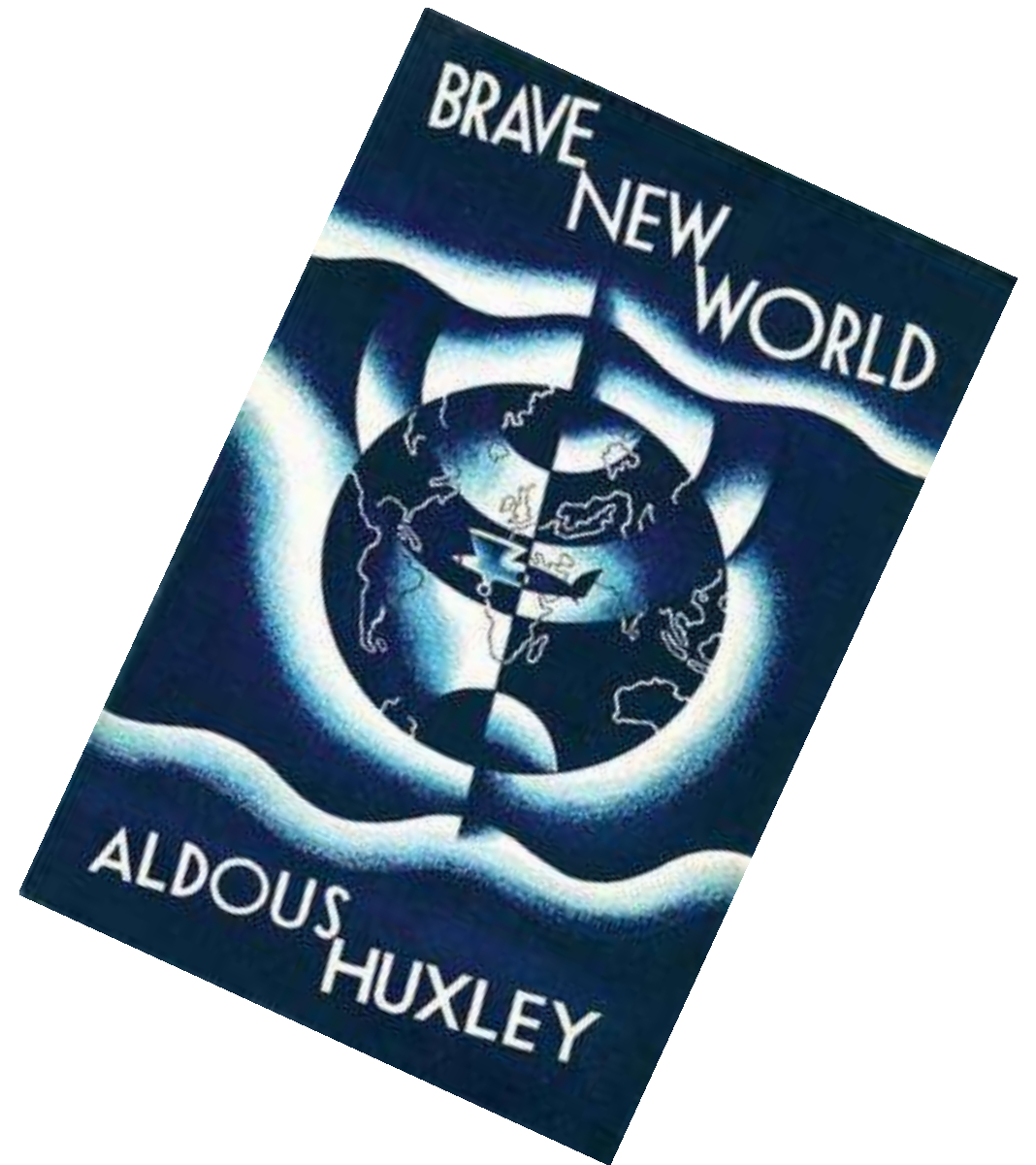
1949; a regimented society,
Big Brother in charge of an
omnipresent surveillance &
propaganda machine





Aldous Huxley

1932; a regimented world where drug takes care of consent



‘System trust’, is social system theory:

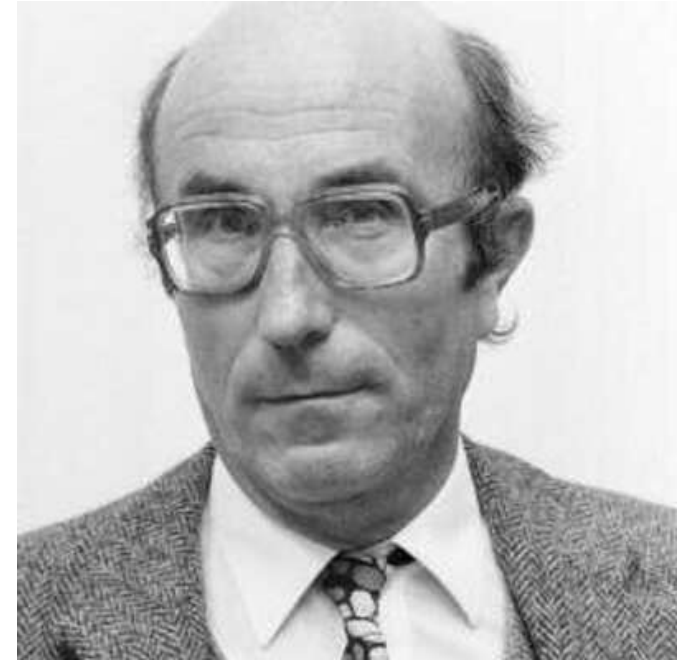
“The reduction of complexity
[made possible by generalized media of
communication as money, power and truth]
assumes trust on the part of those
who are expecting such reduction
and of those who are supposed to
accept it once it is accomplished”



Niklas Luhmann

N. Luhmann, Trust and Power. Polity Press, 2017.

“ [System trust thus permits] the bank to lend more money than it possess, the state to issue more commands than it can enforce using the police, that more information is divulged in professional advice than could be backed up empirically or logically”.



Niklas Luhmann

N. Luhmann, Trust and Power. Polity Press, 2017.

‘the essential fiduciary status’ of science= Trust in science is necessary for the general society to continue to support it, materially and with recruits. And mutual trust within science is necessary for its systems of quality assurance to function

➔ Dangers for PNS?



Jerome R.
Ravetz

Contradictions in
the imaginary of science



Contents lists available at ScienceDirect

Futures

journal homepage: www.elsevier.com/locate/futures



Postnormal Science and the maturing of the structural contradictions of modern European science

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Ravetz, J. R. Postnormal Science and the maturing of the structural contradictions of modern European science. *Futures* 43, 142–148 (2011).

Prudent science and technology versus science for corporate or military interests.

Science to inform policy decisions versus science lending a veil of rationality to the same decisions.

Science as a source of emancipation and flourishing versus science as the currency of lobbies.

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Rather than ending religious wars, science is starting some of its own – including internal ones
(hoax on post-colonial and gender studies)

Science reproducing the sins of the society, rather than being their cure

Views from a continent in flux, by Carlos Moedas, Isabelle Vernos, Stephan Kuster, Helga Nowotny, Andrea Saltelli, Alina Mungiu-Pippidi, Jan Wouter Vasbinder, Daniel R. Brooks & Patrick Cunningham, *Nature* 569, 481–484 (2019)

Science's responsibilities:

Climate

The division between science's image and science's role is acute in the present discussion about how to deal with climatic change

From concern to alarm, from alarm to panic

Main narratives: science as victim of big oil; if our lifestyles have not changed yet it is because of the so-called deniers (esp. in the US) & their dark money

Perhaps we could change our consumption pattern ourselves irrespective of what deniers and president Trump choose to do.

World Health Organization: seven million people die every year because of atmospheric pollution (outdoor and indoor)

→ Seven million reasons to reduce the consumption of fossil fuels without awaiting the climate Armageddon

Yet there is no public figure which is not onboard

Paul Krugman and the **depravity** of climate deniers; V. Shiva, N. Klein, N. Chomsky calling for citizens to organise for climate ‘emergency’; climate strikes; US democrats for a Green New Deal



Greta Thunberg

Green New Deal – Joseph Stiglitz: “It is better to leave a legacy of financial debts, which our children can somehow manage, than to hand down a possibly unmanageable environmental disaster” = future generations to the gig economy?



Joseph Stiglitz

Joseph E. Stiglitz, “From Yellow Vests to the Green New Deal,” Project Syndicate, Jan-2019.

The only institution suggesting that jobs may come before climate is the catholic church



Pope Francis

Pope Francis, “Laudato si’,” 2015,
http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html.

We can do it!

Economy can be made circular, decarbonized,
climate can be geo-engineered

Mathematical models can predict damage in \$ up to
the year 2050 or 2100

Model generated numbers in the public narrative: to
limit temperature increase to 2 °C with a 50%
certainty a greenhouse-gas concentration of 450
ppm CO₂-equivalent should not be exceeded

The same elites which failed to predict Brexit and the election of Trump were taken by surprise by the yellow jackets



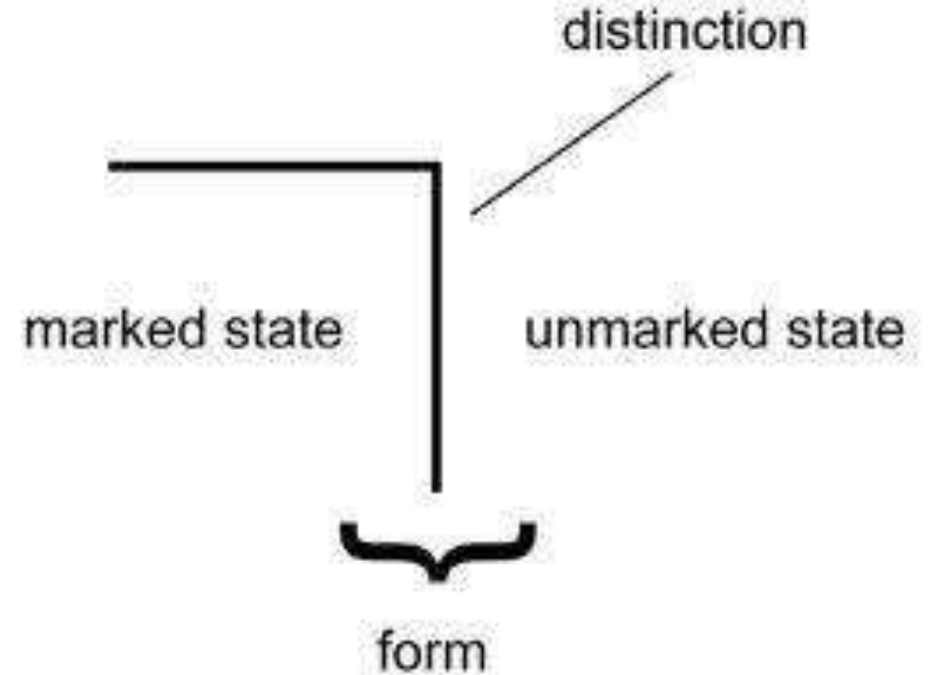
To use a form of taxation which hits the poor more than the rich to fix the environment appears to protesters as the ultimate effrontery of the elites

The climatic day of reckoning as a Baconian idol (Idol of Theatre)

It assuages our anxieties about the present by projecting the threat into a convenient not-so-close-to-affect-me future

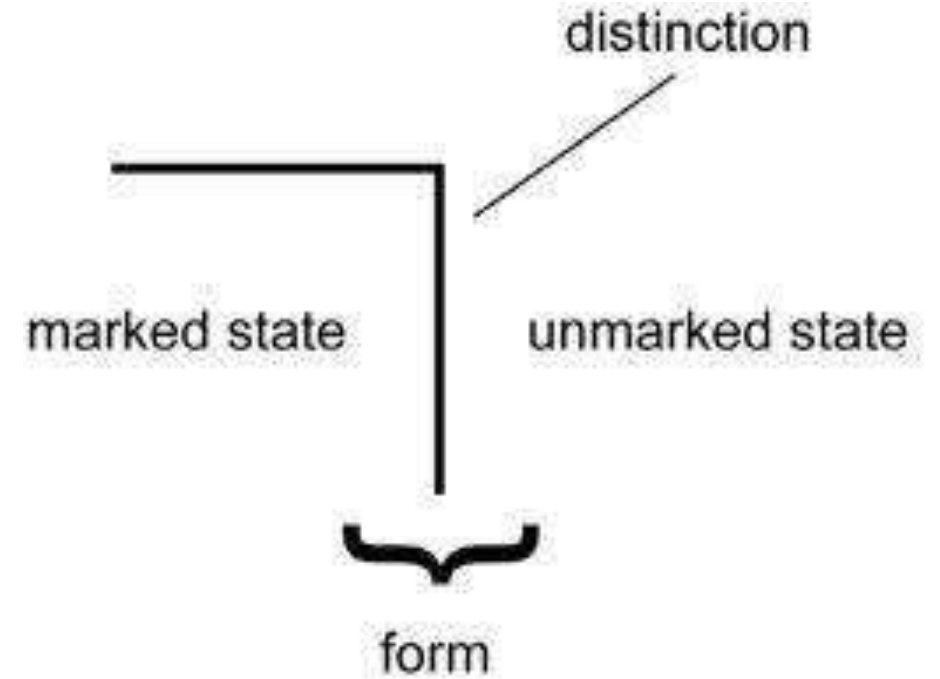


Instead of fostering ecological sensitivity, it boxes ecological problem into a single planetary container, where an odourless and colourless gas slowly increases the temperature of the planet



All observations
require a distinction
(N. Luhmann)

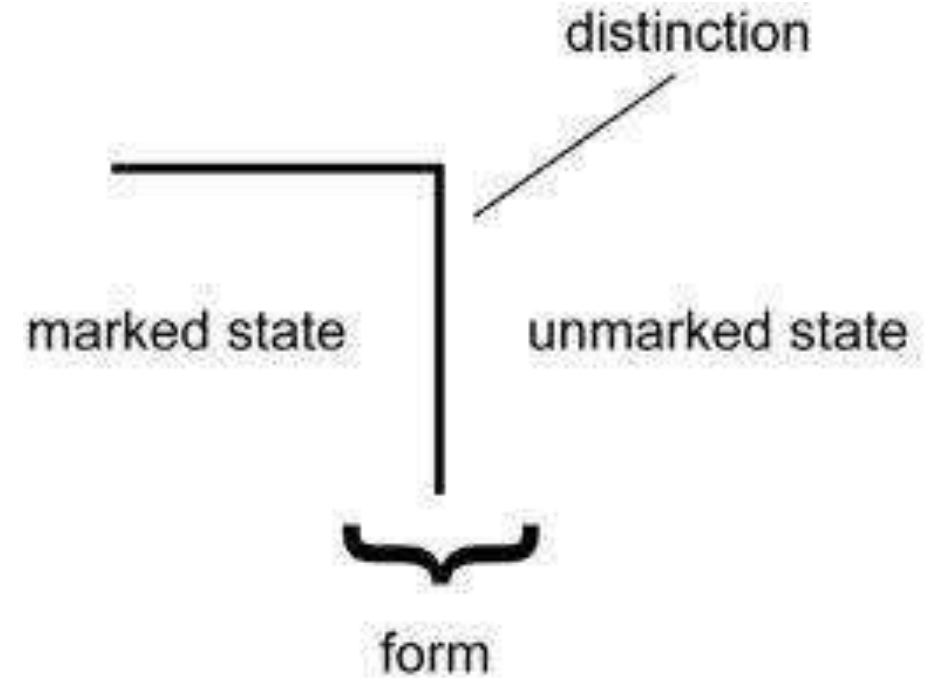
This vision risks subtracting energies from the fight against the messier aspects of our impact on the planet



All observation requires a distinction (N. Luhmann)

Since we need to fight all forms of fossil fuel we cannot fight the dirtiest, from tar sands to shale gas fracking

Since we take up a fight with fossil fuels corporations we can fight less the agrochemical ones



All observation requires a distinction (N. Luhmann)

Jerry's scenarios for the future of science

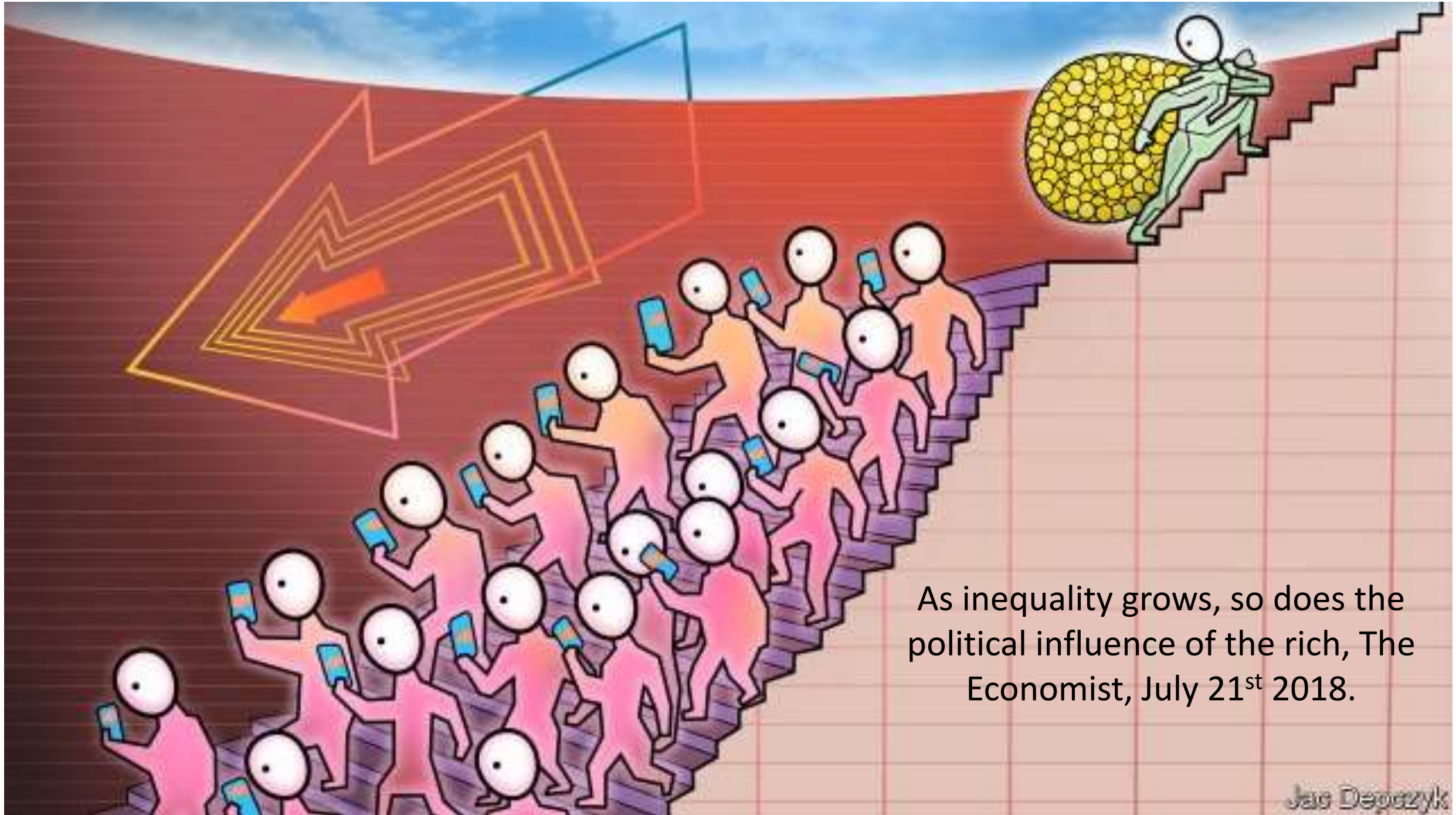
Continued triumph, Muddling through,
McScience, ...

How about a techno-spit scenario (Blade Runner-science?):

An affluent super-technological and possibly trans-human/immortal minority, versus a useless and distracted majority left glued to its mobile phones and tablets

Y. N. Harari, *Homo deus : a brief history of tomorrow*. Harvill Secker , 2016.

J. R. Lent, *The patterning instinct : a cultural history of humanity's search for meaning*. Prometheus Books, 2017.



As inequality grows, so does the political influence of the rich, The Economist, July 21st 2018.

Reformation or resistance?

PNS 5 Symposium

Knowledge, Science Practices and Integrity:
Quality through Post-Normal Science Lenses.

University of Florence (Florence, IT)

Palazzo Fenzi-Marucelli

21-23 September 2020

The End



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