

# Two Approaches to EBHP → Two Sets of Almost Insoluble Problems

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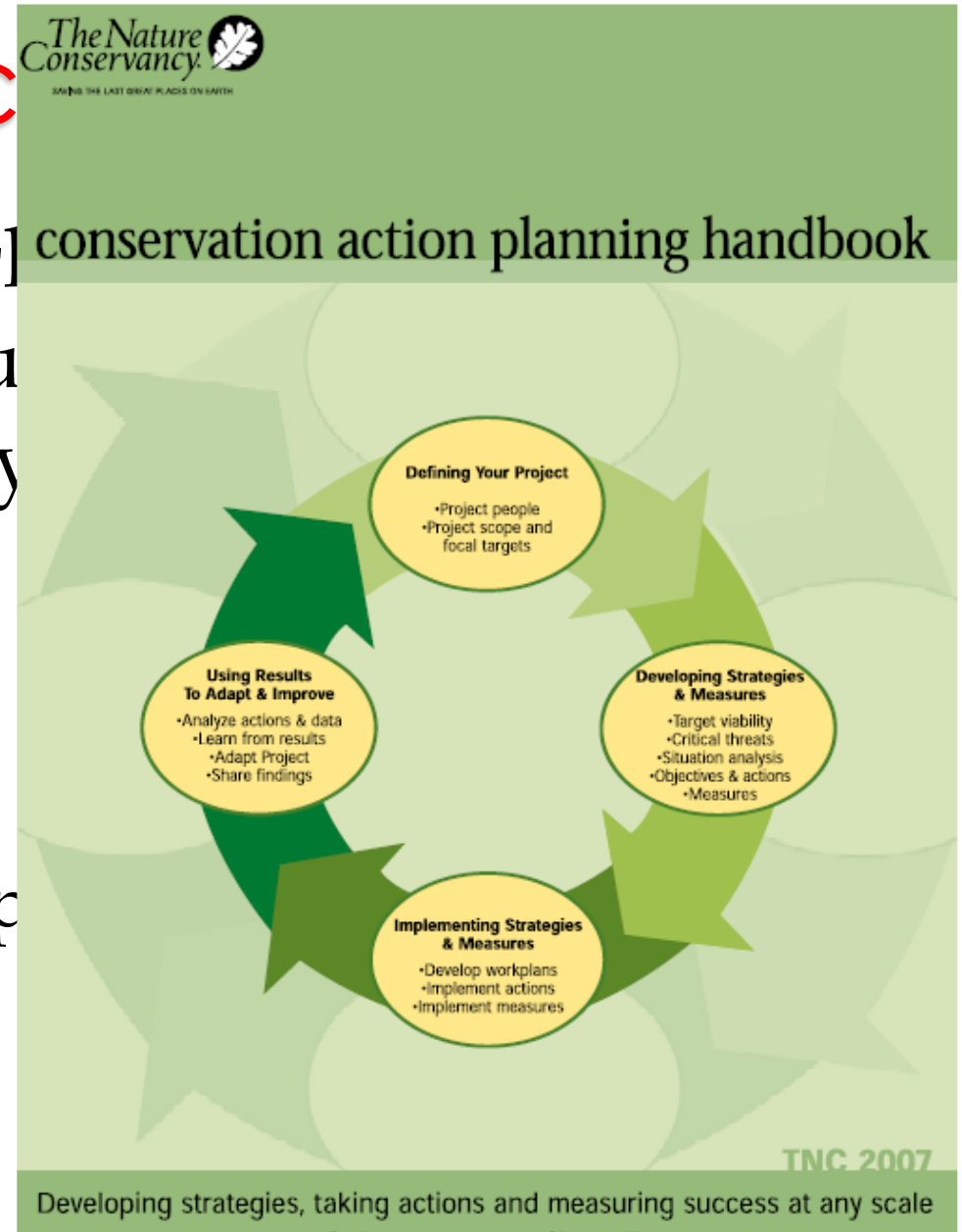
Two approaches to policy

# Intervention-centred

- Focuses on intervention-outcome pairs
- As in 'What Works' initiatives
  - 7 UK What Works Centres
    - Including NICE!!!
  - US Dept of Education's What Works Clearing House
  - J-PAL
  - Lots of work at DFID
  - ...

# Context-c

- Focuses on the underlying geographic, and cultural afford causal pathway outcome
- ‘Systems’ approach
- As in
  - Eileen Munro: “Child p problem.”
  - Nature Conservancy
  - ...



## Intervention-centered approach

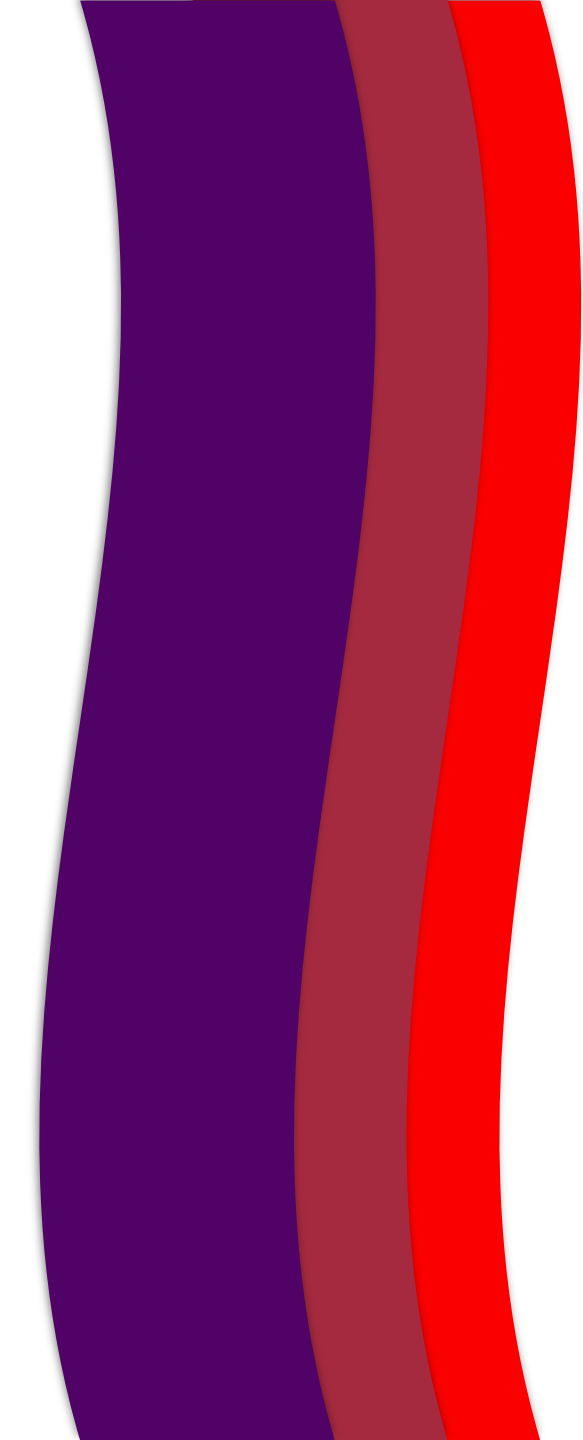
- *Focuses:* on characteristics of the policy
  - Does it work?
  - For whom, when, where?
  - How to implement it
  - How much does it cost?
  - What are the side effects?
- *Studies:*
  - Repeatable causal processes
- *Requires:* evidence to support generalizations or transfers of policy outcomes

## Context-centered approach

- *Focuses:* on the arrangements in the target context
- *Studies:* what causal processes these afford; what changes can be made so that they afford more desirable processes
- *Requires:*
  - A model of what's happening in the target context
  - An understanding of how the powers and arrangements afford this
  - A plan to change what's happening, via producing either
    - A new intervention, old structure
    - New structure
  - Evidence for all of this



Intervention centring



'Quick Guide' ...*Learning From Research:  
Systematic Reviews For Informing Policy Decisions*

Each concept within the question has to be carefully defined, as this will affect which studies are included or excluded...Thus a review on *the effects of homework on children* would require clarity of what was meant by both '*children*' and '*homework*', and also what '*effects*' were to be considered.

# Introductions to systematic reviews...

- One study reviewed research evidence relating to **accidental injury** and **risk-taking** behaviour by young people aged 12-24.
- What does the evidence tell us about the effectiveness and **efficiency** of **committee work**?
- **Single-sex settings** seem to be effective in **reducing stereotypical gender constructions** when the aim is ...



## 3.15.1 Captive breeding

Based on the collated evidence, what is the current assessment of the effectiveness of interventions for captive breeding?

Likely to be beneficial	<ul style="list-style-type: none"> <li>Artificially incubate and hand-rear birds in captivity: raptors</li> <li>Artificially incubate and hand-rear birds in captivity: seabirds</li> <li>Artificially incubate and hand-rear birds in captivity: songbirds</li> <li>Artificially incubate and hand-rear birds in captivity: waders</li> <li>Use captive breeding to increase or maintain populations: raptors</li> </ul>
Unknown effectiveness (limited evidence)	<ul style="list-style-type: none"> <li>Artificially incubate and hand-rear birds in captivity: bustards</li> <li>Artificially incubate and hand-rear birds in captivity: cranes</li> <li>Artificially incubate and hand-rear birds in captivity: gamebirds</li> <li>Artificially incubate and hand-rear birds in captivity: parrots</li> </ul>

Use captive breeding to increase or maintain populations of storks and ibises

Unknown effectiveness (limited evidence) | Based on: 4 studies



Use captive breeding to increase or maintain populations of raptors

Likely to be beneficial | Based on: 5 studies



Use captive breeding to increase or maintain populations of bustards

Unknown effectiveness (limited evidence) | Based on: 4 studies



Use artificial insemination in captive breeding

Unknown effectiveness (limited evidence) | Based on: 5 studies



Use captive breeding to increase or maintain populations of pigeons

Unknown effectiveness (limited evidence) | Based on: 1 study



Use captive breeding to increase or maintain populations of songbirds

Unknown effectiveness (limited evidence) | Based on: 3 studies



Artificially incubate and hand-rear bustards in captivity

Unknown effectiveness (limited evidence) | Based on: 2 studies



# Philosophically speaking

The intervention-centred approach makes most sense when

- The intervention has an inbuilt 'tendency' towards that outcome
  - As with gravity wrt *making heavy bodies fall*
- Do the bulk of public health interventions have an inbuilt tendency to the their targeted outcomes?

- Killing ticks will reduce spread of Lyme disease??
- Compare: Killing badgers will reduce the spread of bovine TB.

## The trouble with culling badgers



**Badger culling has been tried many times over the last 30 years but studies have failed to prove its ability to reduce levels of bTB.**

The best designed and largest cull was the Randomised Badger Culling Trial carried out by the Independent Scientific Group set up to advise the Secretary of State for Environment, Food and Rural Affairs on how best to tackle the problem of cattle TB. Its final report in 2007 showed that small-scale culling, targeted at particular farms, increased the incidence of the disease in herds rather than reduced it.

Widespread culling, over areas of 100km<sup>2</sup>, achieved a modest overall reduction in cattle TB, but increased incidence on adjoining lands which were not culled. The reason was that culling caused badgers to move around more widely, transmitting more infection to one another and to cattle<sup>1, 2, 3</sup>.

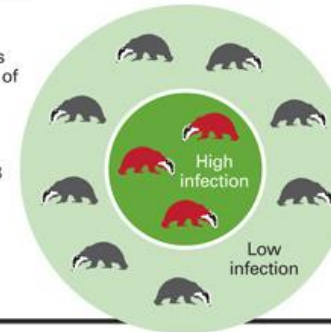
This change in badgers' behaviour (known as the perturbation effect, see diagrams opposite) is likely to undermine the benefits of any form of culling.

[wildlifetrusts.org](http://wildlifetrusts.org)

1. Pope LC, et al (2007) Molecular Ecology 16: 4919-4929. 2. Carter SR, et al (2007) Proceedings of Biological Science 247: 2769-2777. 3. Woodroffe R, et al (2006) Proc. National Academy of Science 103: 14713-14717

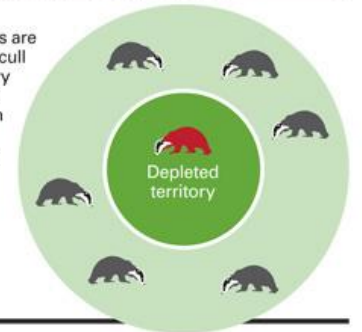
### 1 PRE-CULL

In a stable badger population, there is limited movement of badgers from one area to another. Badger setts harbouring high levels of bovine TB infection tend to remain relatively separate



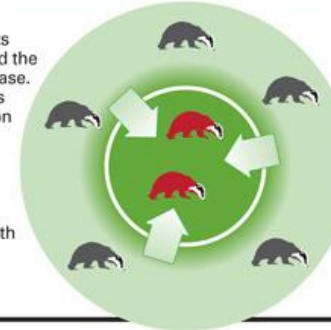
### 2 IMMEDIATELY POST-CULL

Once most badgers are removed from the cull area, a new territory opens up allowing badgers to come in from the surrounding areas



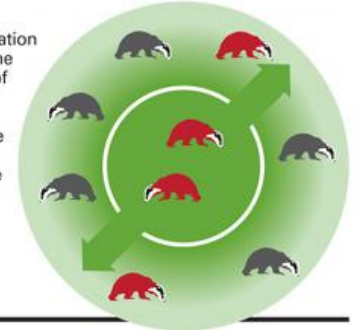
### 3 BADGER MOVEMENTS INCREASE

Badger movements around and beyond the infected area increase. Immigrant badgers pick up the infection from abandoned setts and uncultured infected animals. Badger-to-badger transmission increases along with the likelihood of badger-to-cattle transmission



### 4 NEW EQUILIBRIUM

Because the population is still lower than the carrying capacity of the total area, badgers move around much more than they did before the cull. The movement distributes the original infection over a wider area



Maybe: Killing badgers reduces the immediate number of badgers??

# Giving deworming pills to children

- No inbuilt tendency toward improving reading scores
- This outcome depends on a complex underlying social system that allows – or not – the sequences of changes supposed to lead to better reading scores
- Maybe deworming medicine has a tendency to kill intestinal worms in children
- Even that depends on more underlying structures
  - Mebendazole works by inhibiting worms' ability to absorb sugars, by interfering with the proteins in their intestine or absorptive cells
- Happily we can take as given the structural similarity among threadworms
- Then all we have to worry about is
- Everything else!



Context-centring

Social systems are like mechanisms:  
they afford causal processes



# Context centring

US National Academy of Sciences' *To Err Is Human: Building a Safer Health System*

“The title of this report encapsulates its purpose. Human beings, in all lines of work, make errors. Errors can be prevented by designing systems that make it hard for people to do the wrong thing and easy for people to do the right thing. Cars are designed so that drivers cannot start them while in reverse because that prevents accidents. Work schedules for pilots are designed so they don't fly too many consecutive hours without rest because alertness and performance are compromised.”

# Causal pathways & causal structures

## The Munro Review of Child Protection:

Final Report

*A child-centred system*

Professor Eileen Munro

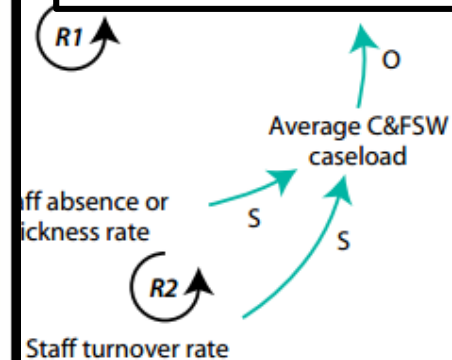


A word cloud containing various terms related to child protection and social work, including: Trustworthy, Reliable, Supportive, Accessible, Kind, Relationships, Knowledgeable, Approachable, Helpful, Open, Protection, Dedicated, Listening, Involving, Honest, Impartial, Respectful, Hearing, Right, Consistent, and Experienced.

...ic impact of efforts to improve social work  
...tice

...d Lane, London School of Economics and

Description of  
the underlying system  
that makes these likely





# New child protection structures



Signs of Safety is an integrated framework for how to do child intervention work - the principles for practice; the disciplines for practitioners' application of the approach; a range of tools for assessment and planning, decision making and engaging children and families; and processes through which the work is undertaken with families and children, and including partner agencies.



Simplifying  
Child Protection  
Complexity

**Signs of Safety**



## Context-centring: problems

- Too hard
- Too expensive
- Too arbitrary

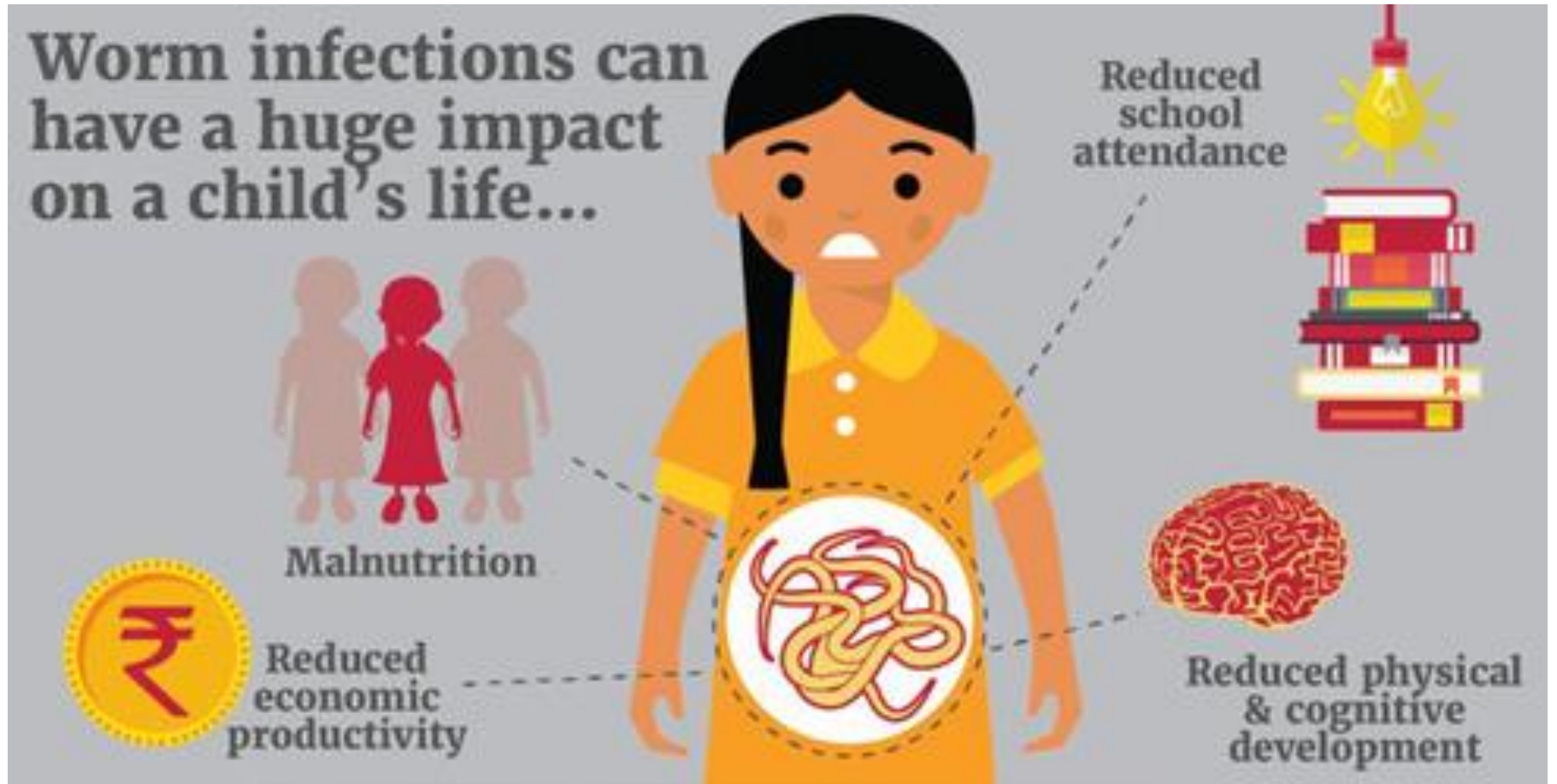


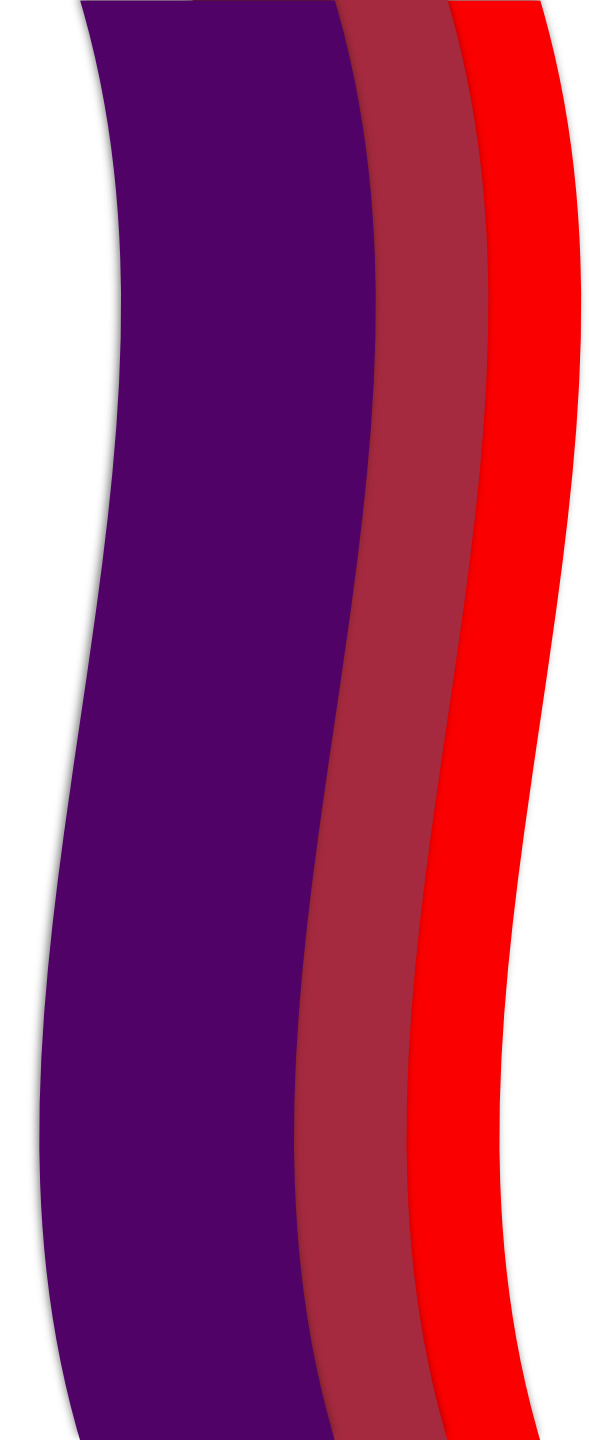
Intervention centring: problems

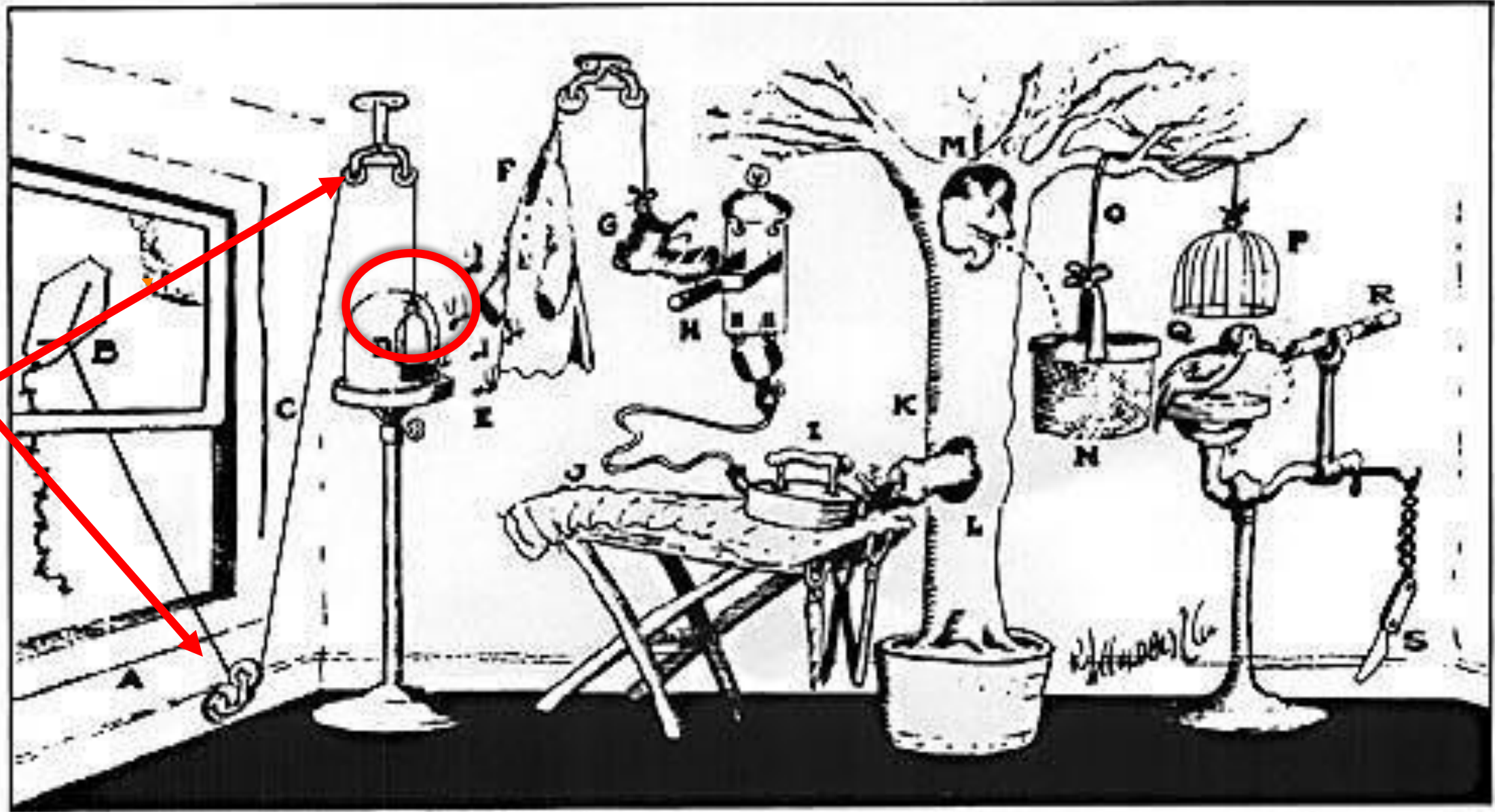
# 1. The problem of the long view



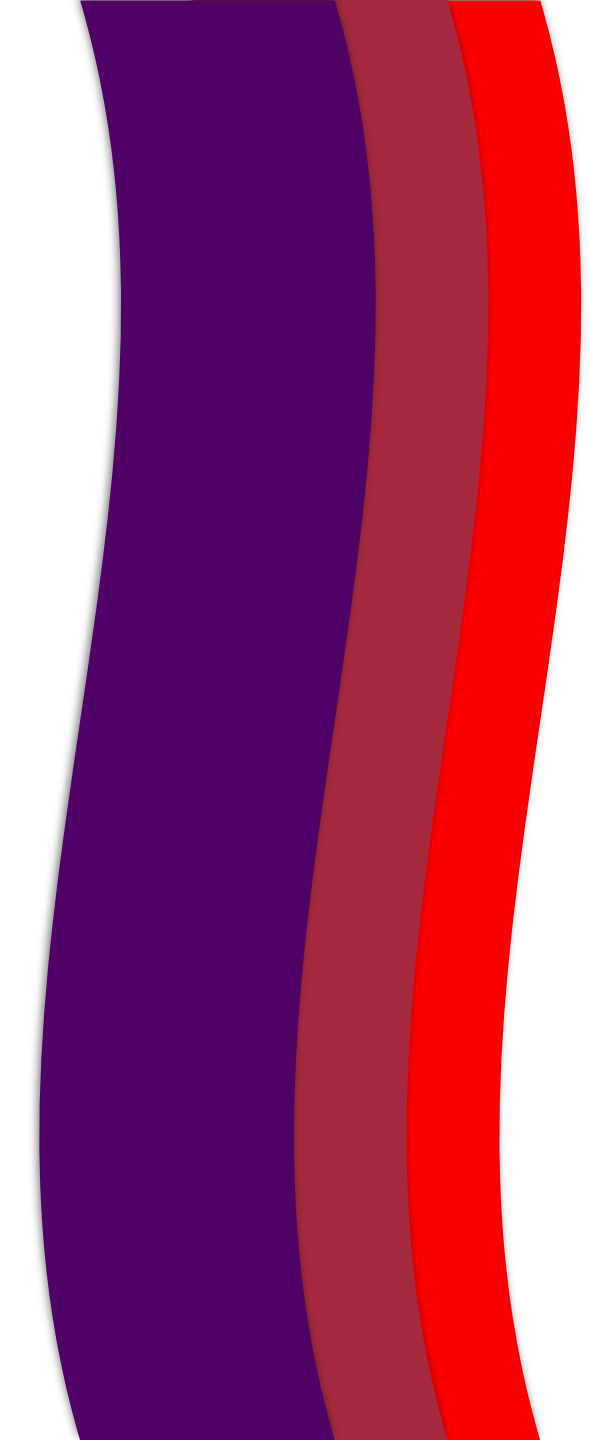
# Worm infections can have a huge impact on a child's life...



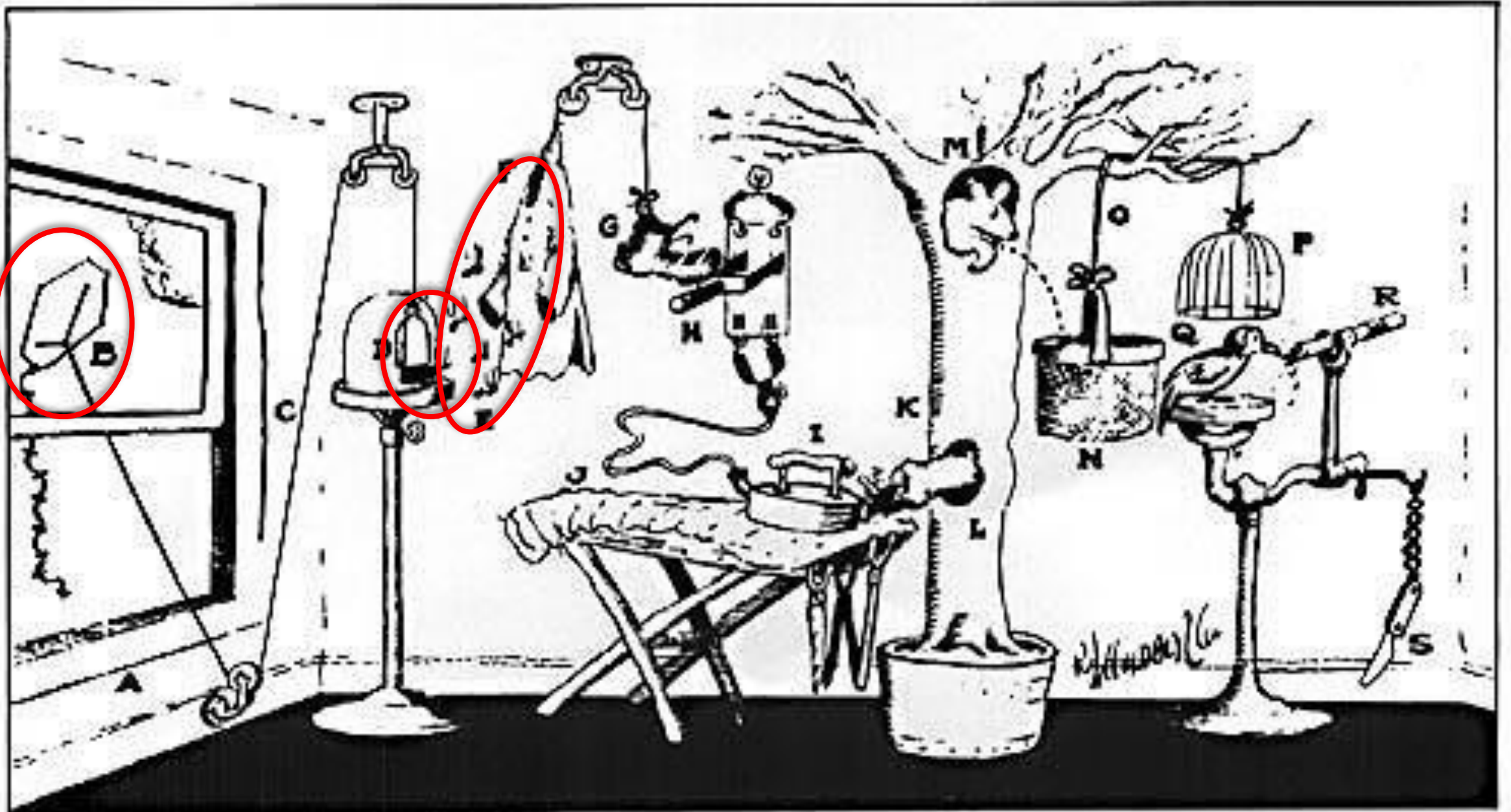
- 
1. The problem of the long view
  2. The Donald-Davidson problem



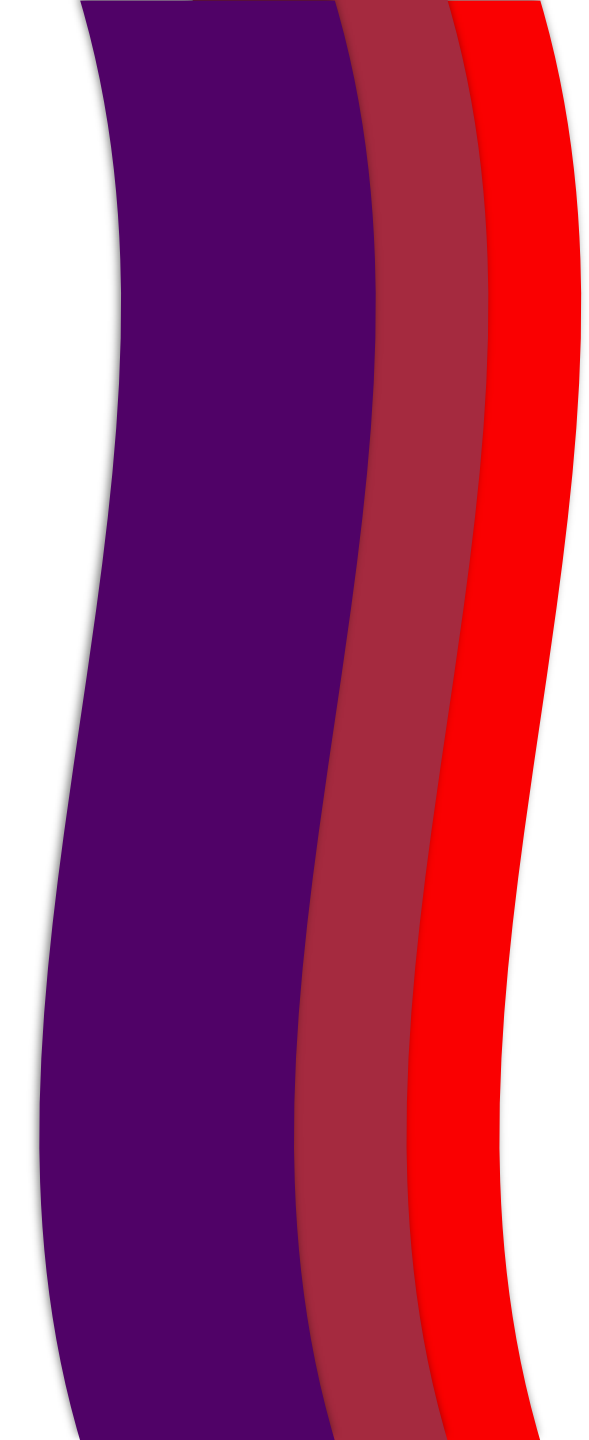
Pencil Sharpener RUBE GOLDBERG (tm) RGI 038

- 
1. The problem of the long view
  2. The Donald-Davidson problem
  3. The concatenation problem





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- $U \rightarrow R,$

- $B \rightarrow E$

- ~~$U \rightarrow E$~~

- $U = k, U \rightarrow R, R = d,$

- $B = d, B \rightarrow E, E = m$

Therefore:  $k \rightarrow d \rightarrow m$



Where can an intervention contribute in the same way as in a study population?

Where the underlying structures that allow the intervention/outcome connection are sufficiently like those in the study population




The context-centered approach



Voodoo: when the intervention-  
centered approach works

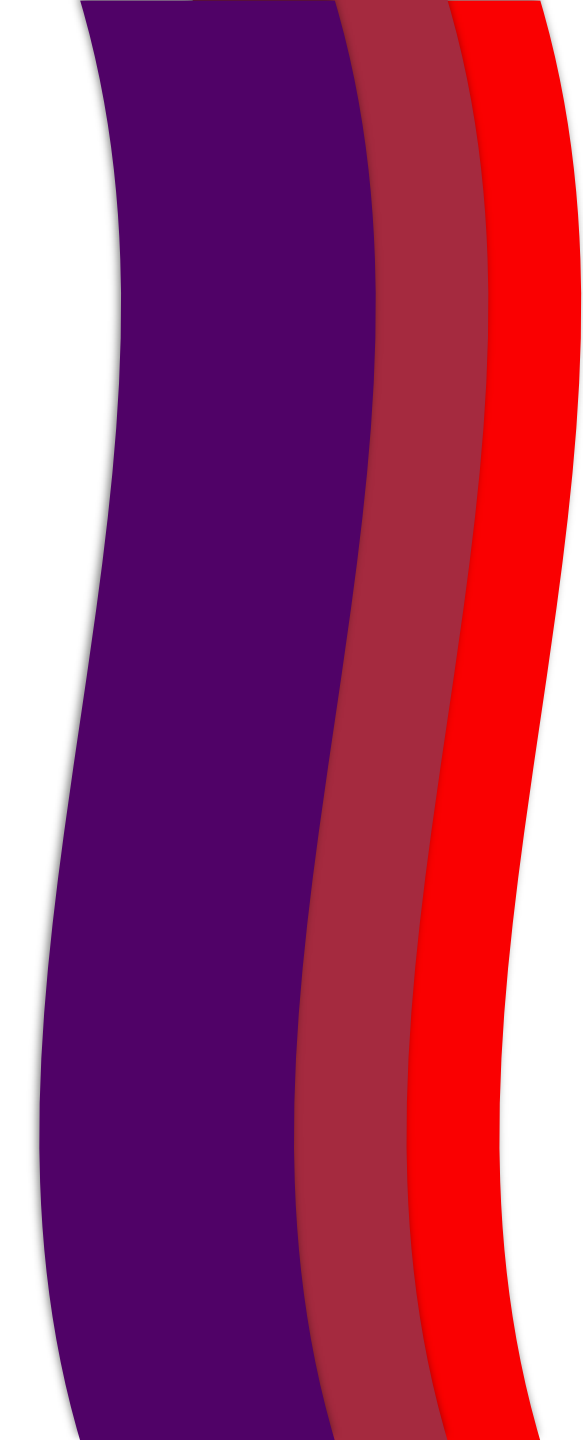
# Michael Strevens: Voodoo that works



- 
- Ceteris paribus, in conditions Z, Fs cause Gs =  
By way of the target mechanism M, the conditions Z and the property F bring about the property G
  - When a causal hypothesis is framed it is supposed to make a claim about a particular contextually determined mechanism: the target mechanism
  - The facts about M that make the cp causal claim true “are typically opaque to the scientists who formulate and test them.”





- 
- The reference to mechanisms is opaque but we can still put our cp claims to use
  - Successes depend on
    - Markers
    - Cautions

# System markers

- Manufactured items come with labels, logos



- God-made structures are often recognisable 'from the outside'



- What about social systems?



# Common development markers

- Democracy?
- Good governance?
- Growth/ GDP?
- Women's participation?
- Foreign direct investment?
- ...

Will deworming work here?



# Cautions

- Don't plant red acorns till the spring

- Do

- Do

you

- Wa

- Wa

ma



water

ess

EP



- Hard to come by
- Hard to justify



Markers are fine

- IF they work, and  
IF there's good evidence that they do

But

1. What does that evidence look like?
2. Where does it come from?

**We don't have methods for answering**

# Warning: the 2 approaches

## Context-centred

- Takes the problem on directly
- It's exceeding difficult
- It's expensive
- We have no guidelines for how to do this nor for how to evaluate what's been done

## Intervention-centred

- Finesses the problem by looking for markers
- We have no guidelines for how to do this nor for how to evaluate what's been done





# Conclusion

- No matter which approach you take....
- Hedge your bets and plan for failure



CENTRE FOR HUMANITIES  
ENGAGING SCIENCE  
AND SOCIETY



Knowledge for Use



European Research Council  
Established by the European Commission  
Supporting top researchers  
from anywhere in the world

# Thank you

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