

Applied Data Analytics

Data analysis — Interpretation challenges

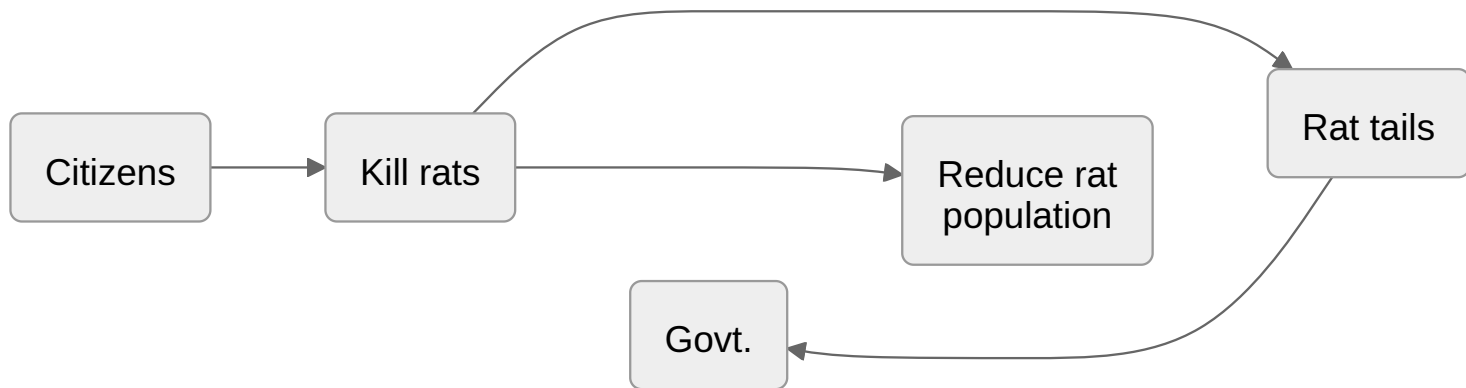
Proxy failure

Hans-Martin von Gaudecker and Aapo Stenhammar

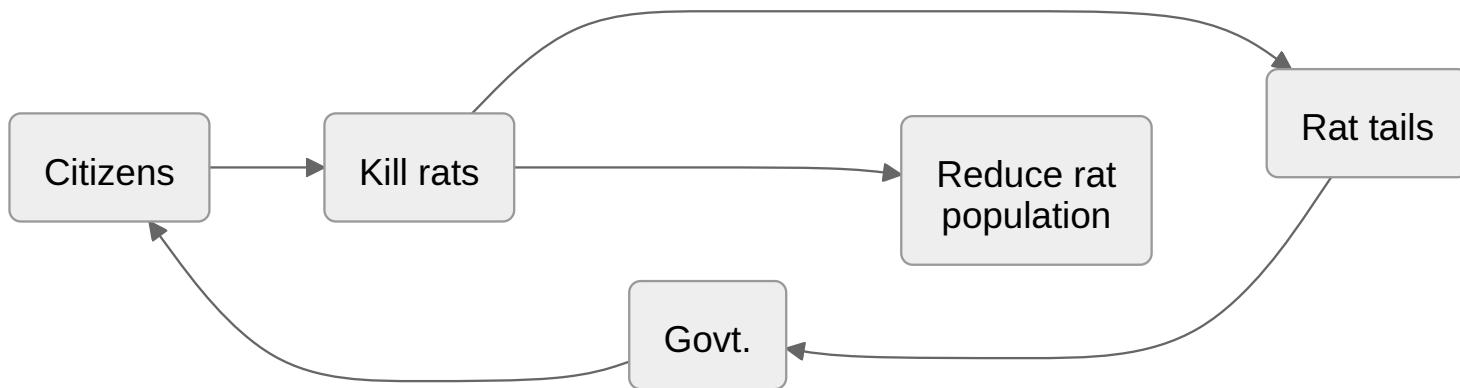
Rats (Hanoi, 1902)

- Needed to reduce rat population
- Wanted to provide incentives for killing rats
- Payment upon delivering rat tail

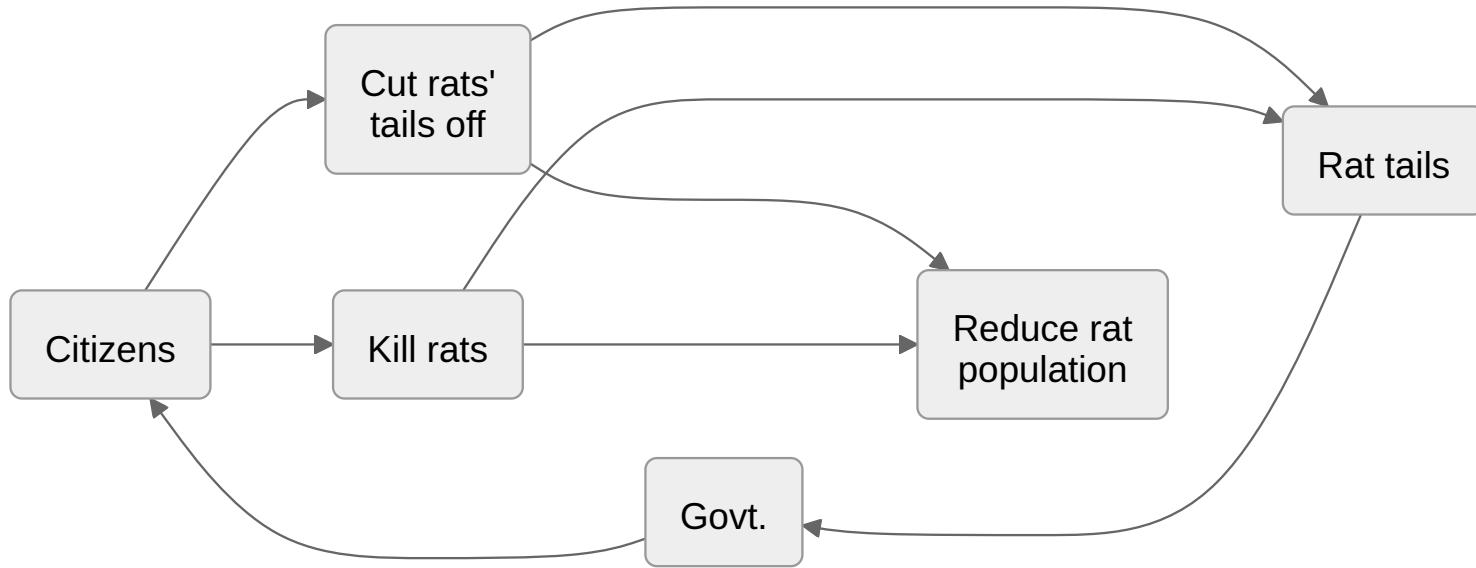
The world before the incentive scheme



The world with the incentive scheme



The world with the incentive scheme



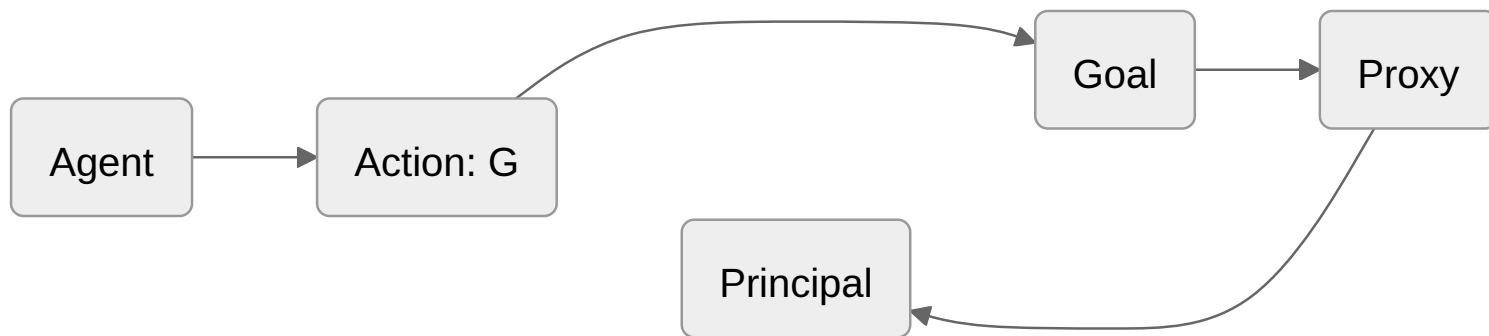
Goodhart's law

In the formulation by Marilyn Strathern:

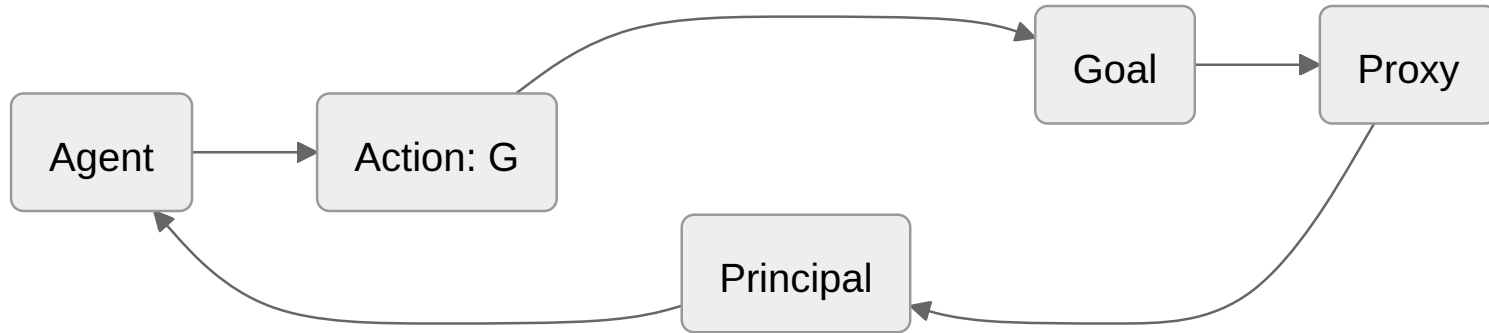
When a measure becomes a target, it ceases to be a good measure.

Causal model for how the world works changes when we let agents act upon it.

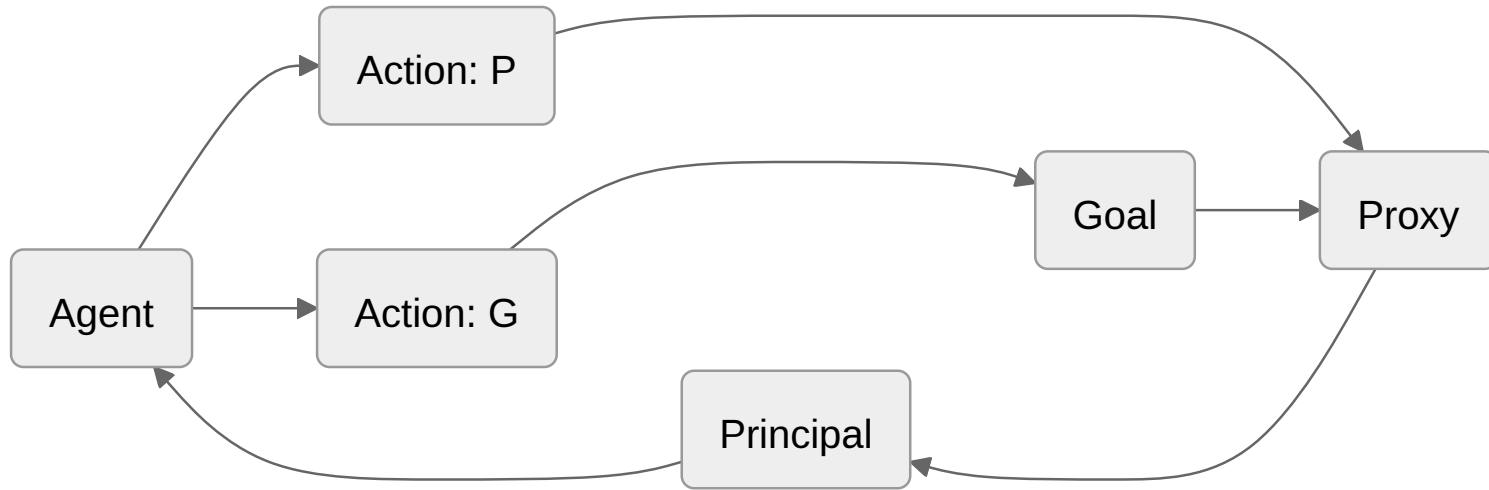
Principal observes



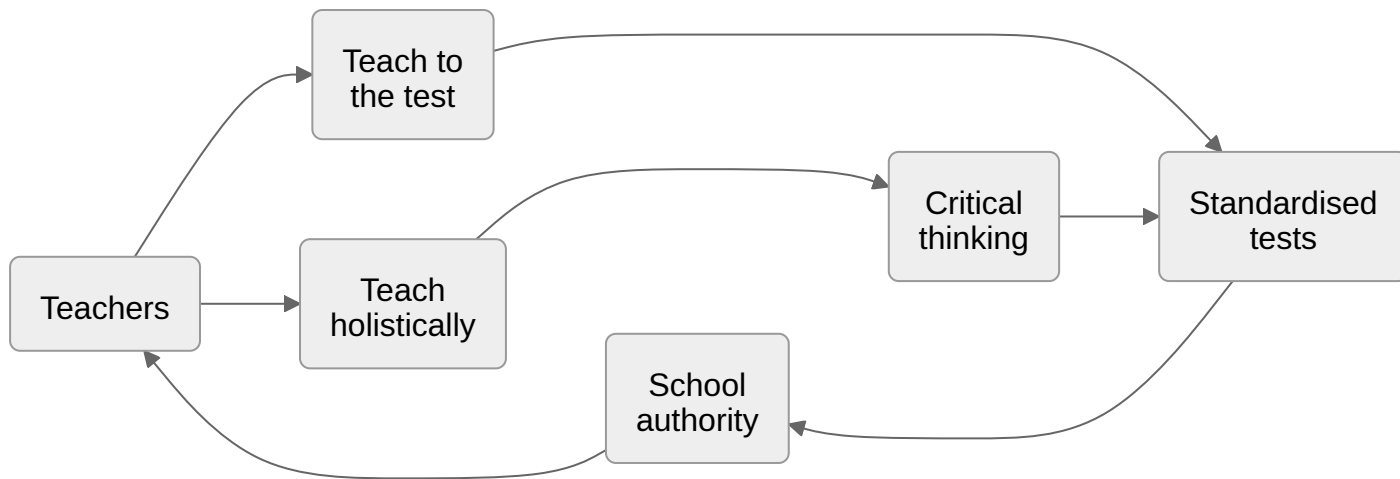
Principal incentivises proxy measure



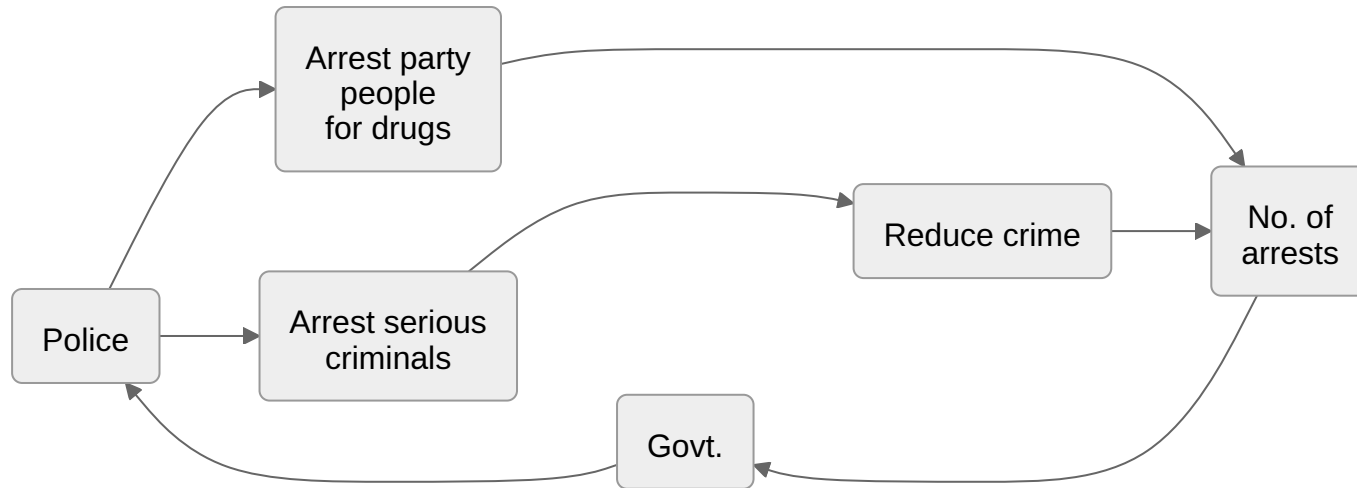
Principal incentivises proxy measure



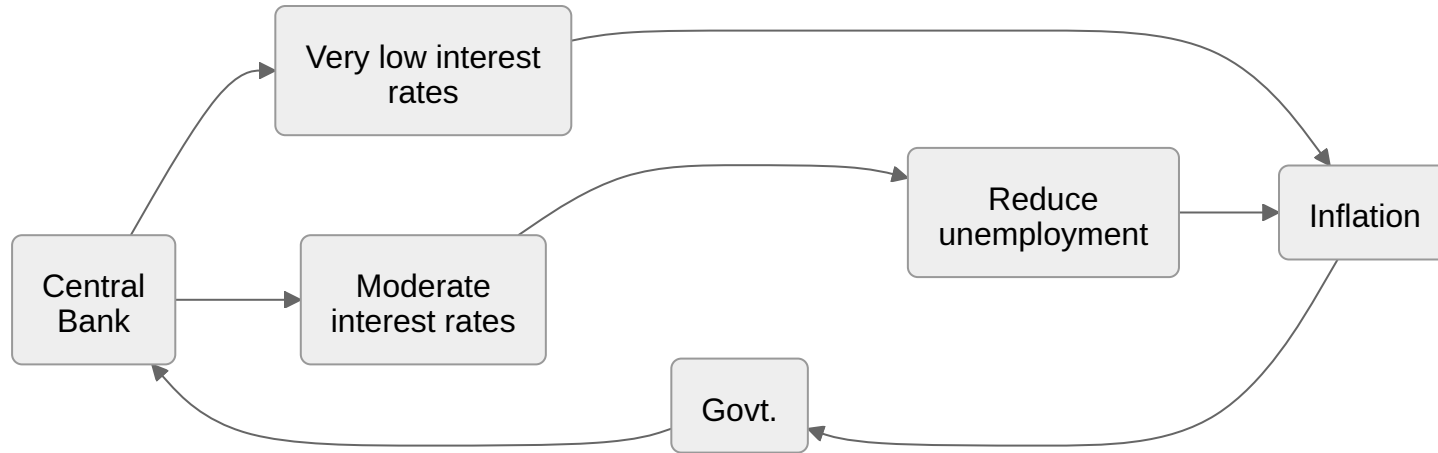
Education



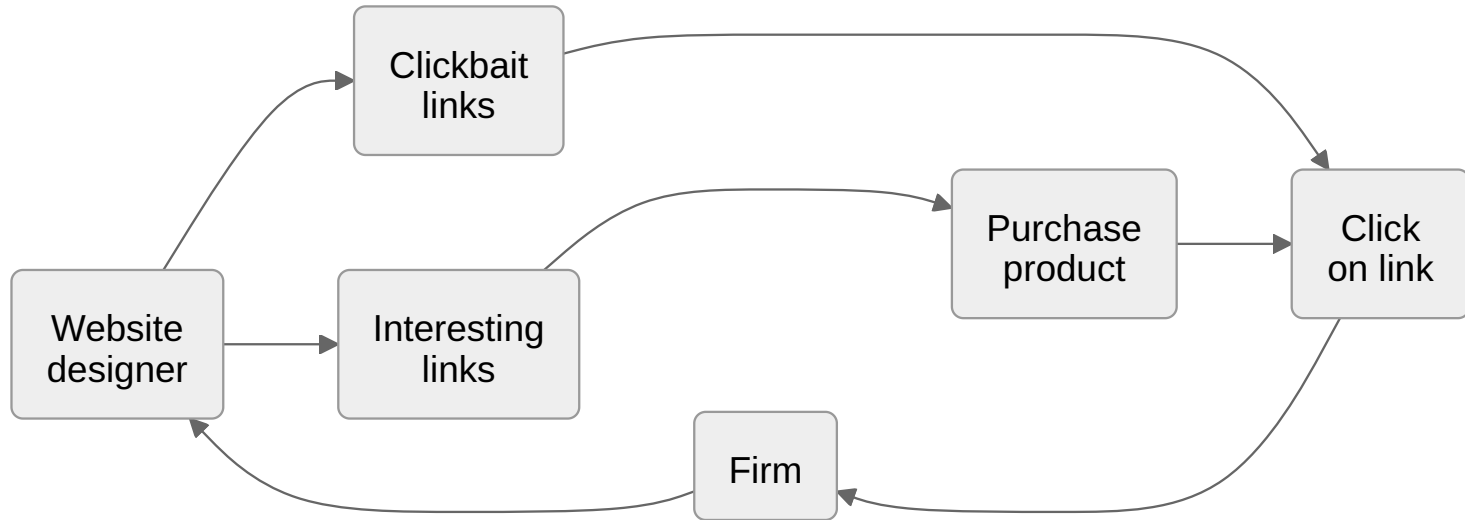
Policing



Phillips curve



Clicks



Bottom line

- Quantification is important
- Measurement is important
- But beware when applying it to control complex systems!

Ideas of one principal vs. creativity of many agents!