Science in context

Introduction, lecture and group work

KULT8850/1 Fall 2025

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Plan Day 3+4

- Yesterday
  - Terje: Science in society and history, and as a life
  - Knut: Navigating universities as socio-epistemic environments
- Today
  - Lecture: "On failure in science - and on joy in science" (referring to the Latour text)
    - in theory
    - and practice
  - Govert: Theories about science as practice

Days 1+2

- What do you remember most vividly (or at least mildly interesting)?
- What was particularly unclear?
- Any revelations (since)?

Jonathan: The fundamentals of the philosophy of science: truth and objectivity

Hannah: Ethics

Rune: 2nd order theorising (about theorising)

Ståle: A phenonmenologist's view of knowledge

Days 3+4:
Starting points

What if we approach science as something which

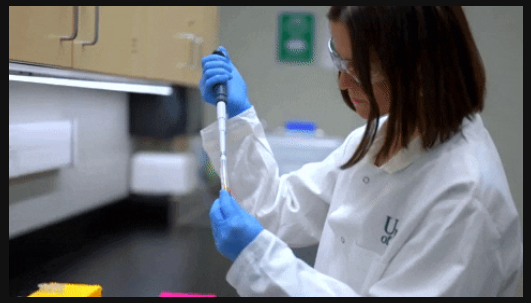
- has a history (there was a time when it did not exist, it changes, and it may cease to exist)
- and it is entangled with politics, economy, society and culture
- and how can this kind of knowledge help you to reach your goals

?

Observing science

Laboratory studies (1970s/80s), the first empirical studies of scientific knowledge production:

Found no secret sauce, no brilliant thinking, just regular **social practices** that can be found elsewhere



The strong programme...

...of **empirical relativism** (Bloor 1976) in the sociology of scientific knowledge (SSK)

- Assumes that there are **causes** for truth claims to be made, refused, and accepted and try to identify these causes
- Seeks to understand - with the same types of explanations - **both successful and unsuccessful** truth claims (symmetry-principle)
- Uses the same explanations on itself (the programme)

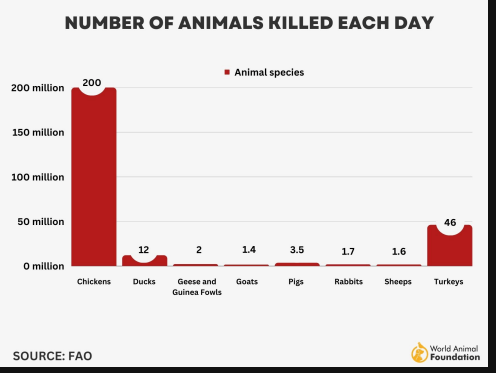
Latour

- On the reading list a classic text from Science Studies
- Latour asks: After the empirical studies of laboratories: what does all this mean?
  - Macro-level: How society/culture/politics creates certain forms of science (cf. strong programme)
  - Micro-level: The nitty-gritty of what happens in laboratories (laboratory studies)
  - Latour: How micro and macro is connected in a very special way in scientific practices
- Science = scaling/movement + inscription devices + trial and error

Three movements

...to connect the world outside the laboratory with the laboratory

- Movement 1: Moving the problem from the world into the laboratory (Pasteur: anthrax = the virus, cows = chicken)
- Movement 2: Solving the problem in the laboratory (through trial and error: kill the virus, save the chicken)
- Movement 3: Testing and implementing the solution outside the laboratory (e.g., transporting the vaccine, vaccinating)



Inscription devices

- Create representations of "real world" phenomena
  - which preserve "relevant" aspects of these phenomena (in relation to a research question)
  - which can be transported, shared, combined, and compared
- Example 1: a chart of chicken deaths after intake of various substances (for the goal of stopping an epidemic)
- Example 2: maps as representations of the world (for the goal of navigation)

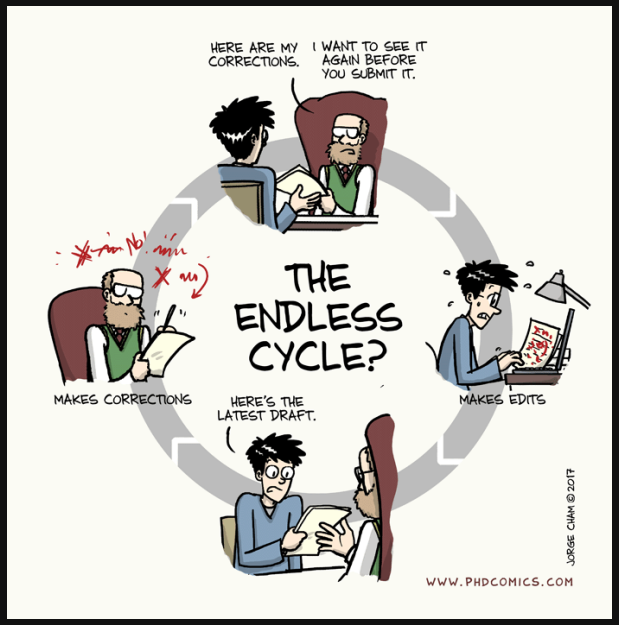
Inscription devices in SSH?

In my own research: the coding of interviews resulting in a code book is producing traces of the original interview which are used to compare and combine (but not shared with other researchers, yet)

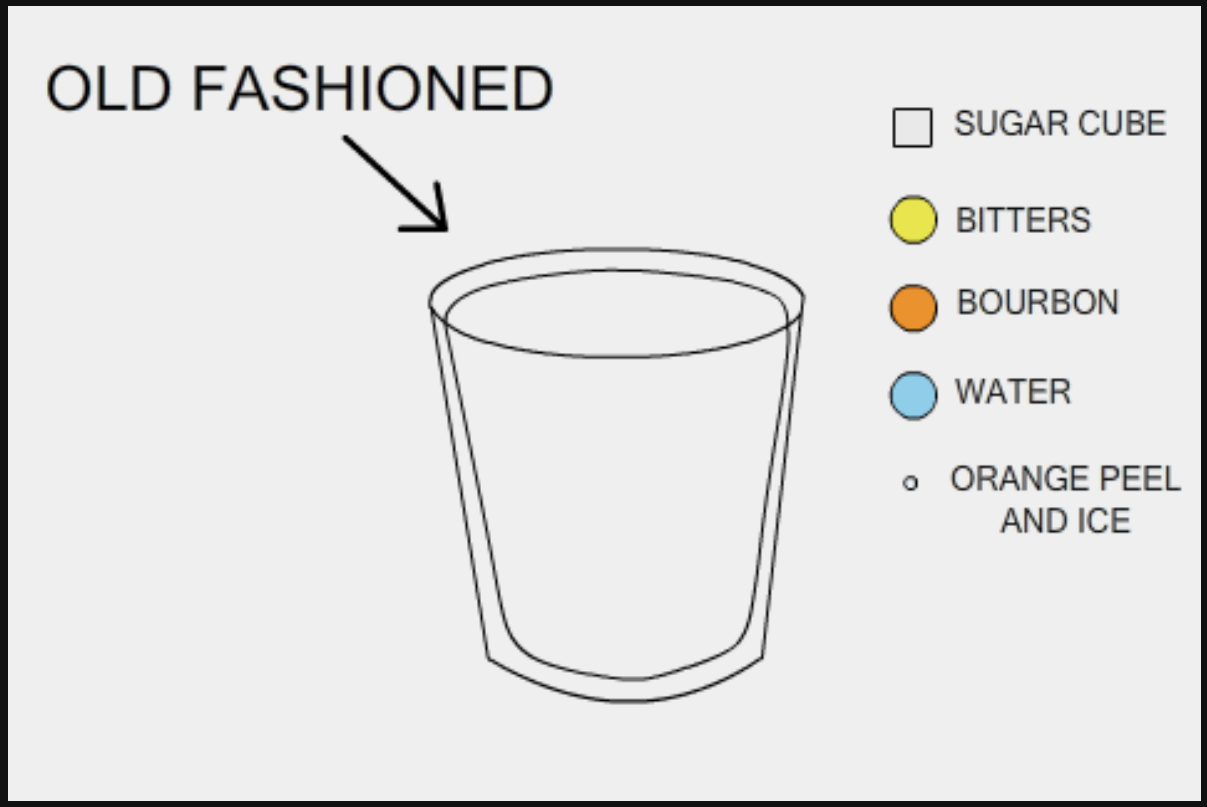
- Which tools are you using?
- Are they producing representations of something? Of what?
- Do they allow you to combine your findings with what other researchers produce?

Trial and error:

Navigating when there is no (complete) map



No recipes for a successful PhD project!



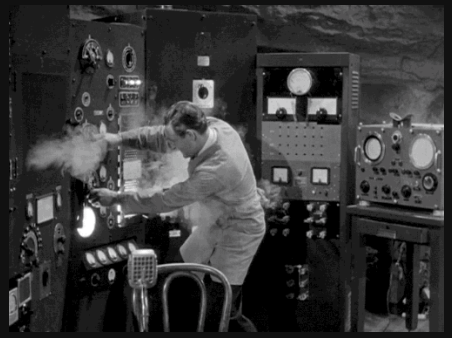
The horrors!

- Every PhD thesis is **unique** because of (slightly) different **research questions** but more importantly because of the **specific constellation** (time/space/people) it is written in
- An expectation that the thesis contributes some **new knowledge**

There is no map! You will enter territories which are not mapped (yet) and **navigate** through them

"Pre-map" Navigation

- Short periods of "getting lost" are part of every navigation as you probe a course and correct quickly
- "Publish" often, "release" early: Enables you to make many small corrections to the course, instead of waiting for the scary big "jump" to the destination
- Feedback-generating occasions: Supervisors, research groups, department seminar, workshops, peer review in conferences and articles, and the defence



Back to Latour: Science as the art of learning through trial and error

- Collective failing
  - Many scientists - many failures - worldwide!
  - The laboratory allows for inconsequential failures
  - The (forgotten) art of publishing failures
- Productive failing
  - failing despite the best preparations
  - the system of constructive critique (peer review)

And science has created tools that are there to help you to fail and to do so productively

- Earlier research
- Methods and theories
- Supervision
- ...

Earlier research as maps and navigational aid

- Following earlier research can give you important breaks from the constant fights of trial and error
- Your predecessors provide partial maps but be careful when combining them into a new map: different "scales", purposes, contexts (time, geography, etc.)
- In fact: the art of stitching together "maps" is what most of PhD work is about

Theories and Methods as navigational aid

- They tell you how to do the research but doing it is another thing
- They help you to avoid the most common and therefore uninteresting failures
- Learning how to implement your theories and methods (involving errors and failures) is part of your PhD education (i.e., methods are both aid and goal)

Notes on supervisors

- Those who succeed early in academia continue to succeed: Matthew effect
- But the majority had to deal with more failures than successes: In theory, the more they have failed productively before, the better they are in supervising process/person/product
- But
  - Unfortunately we tend to forget our failures (e.g., "post-defence amnesia")
  - Your supervisors have most likely failed in another world

Joy despite failing

- Not much joy in failing! What if I am not good enough?
- And: Three years is not much time for detours

How to keep up motivation when failing?

The joy of writing

- Our laboratory where small detours are common and improve the end product: thinking through writing and above all through editing
- Weaving others' texts together and together with your own text

The joy of learning

- Exciting discovery, maybe not new for humankind but new for me!
- A new perspective: new possibilities!
- Unfortunately, not always a good idea to publish based on what one has just learned

Delivering flawed results

- Every research output is flawed: but it does not matter because it is part of a larger process where it contributes to others' work and is allowed to be preliminary again
- The end product is still as unfinished and flawed as the drafts written before (well most likely a little less flawed), but this is the best thesis we were able to write given the circumstances

Peer review theatre

Teams of 5, 10 minutes preparation

Each team divides roles:

The PhD student: has written a paper with an absurd statement in the title, e.g., "Why bananas are the key to scientific success"

Reviewer 1: Loves it but wants you to cite their work

Reviewer 2: Hates it, suggests to study something completely different

Reviewer 3: Misunderstood it completely, critiques things not in the paper

Editor: Agrees with the reviewers

Reflection

Think of a famous failure, mistake, or accident in your field of study that created new knowledge.

You have 1 minute to tell us about it.

10 minutes individual preparation

It is ok to fail with this :-)