Epistemology and logics of social research

Lecture 2.
Are Social Sciences worth (a) different epistemology(ies)?

Problems with the social / compared to nature

- Nature of scientific knowledge
  - Unfalsifiability?
  - Scientific laws
  - Cumulativity
- Empirical difficulties
  - Uniqueness versus Typicality
    - Standardization / Reduction
  - Scientific experiment / manipulation
- The social embeddedness of social sciences
  - Morality / Politics
  - Theory effect
  - Reflexivity
- Social Science. Similar or different epistemology

I. Nature of scientific knowledge

- Origin of Popper (1963) falsifiability
  - uncomfortable with social science grand theories
  - Freud, Marx, Adler
  - The problem: they explain too much.

"I may illustrate this by two very different examples of human behaviour: that of a man who pushes a child into the water with the intention of drowning it; and that of a man who sacrifices his life in an attempt to save the child. Each of these two cases can be explained with equal ease in Freudian and in Adlerian terms. According to Freud the first man suffered from repression (say, of some component of his Oedipus complex), while the second man had achieved sublimation. According to Adler the first man suffered from feelings of inferiority (producing perhaps the need to prove to himself that he dared to commit some crime), and so did the second man (whose need was to prove to himself that he dared to rescue the child). I could not think of any human behaviour which could not be interpreted in terms of either theory. It was precisely this fact--that they always fitted, that they were always confirmed--which in the eyes of their admirers constituted the strongest argument in favour of these theories. It began to dawn on me that this apparent strength was in fact their weakness." (Popper, 1962)

Unfalsifiability of historicism

- Unfalsifiability of dialectic materialism
  - Problem with theoretical dialectic:
    - "if two contradictory statements are admitted, any statement whatever must be admitted" (Popper, 1962)
    - Incoherence of Engels "dialectical mathematics"
      - Negation of a = -a, negation of negation (synthesis) of a: $-a*-a=a^2$

- Historicism
  - Social sciences => "**historical prediction** is their principal aim, and which assumes that this aim is attainable by discovering the 'rhythms' or the 'patterns', the 'laws' or the 'trends' that underlie the evolution of history.
  - Dialectical materialism : All historical developments can be viewed as a result of class struggle and bourgeoisie domination
    - Prophecy of the end of capitalism (as "negation of negation"). Falsified?
    - "Any development whatever will fit the dialectic scheme; the dialectician need never be afraid of any refutation by future experience" (Popper, 1962)
  - "conspiracy theory of society' (Popper, 1945)

Unfalsifiabiliy in social sciences

- Classical debates about paradigms
  - Bourdieu: *habitus*, dispositions, field, domination
    - => unfalsifiable. Cf. Boudon (1979)
  - You don't escape "masculine domination" or "white privilege"
    - Either discrimination
    - Or internalization
- Boudon/Popper => holistic theories unfalsfiable?

- Same criticism against economics
  - Law of markets can match any situation
    - (even demand growing with price = Giffen good)
  - Folk's theorem in Game Theory
  - Revealed preferences
- Not specific to Social Sciences
  - Lakatos: Core hypothesis in a research not falsfiable
  - Too large/grand theories

Too narrow theories: lawless social sciences

- "The cat is on the mat"
  - Falsifiable
  - But not a theory
- Criticism => social science don't formulate general laws as Physics
  - Example Newtonian law of gravity: proportional to the product of the two masses, and inversely proportional to the square of the distance between them. $F=G(m1.m2)/r^2$
  - Formulated with maximum generality (no spatio-temporal limitation)
  - Social sciences "laws" ==> historical/cultural/geographical (linked to proper names)

- Natural sciences also "historical"
  - Biological evolution ; Ethology ; Cosmology
- Generality is a matter of degree not of criteria
- Difficult to use a criteria for delimiting general/specific theories

Social sciences can be very narrow and claim description rather than theory

- Many research in History / Anthropology / Ethnography
  - Description first
  - Induction
  - Sometimes no theoretical claims, or limited theoretical claims
  - Thinking with rather than explaining.
    - Change the way we think rather than deterministic explanations
      - Deconstruction, denaturalization, relativism
    - Ex. Ginzburg, *The cheese and the worms* 1976 : trial of Menochio an Italian miller for heresy=> popular culture, popular form of atheism

Cumulativity problem

- Lack of cumulativity
  - A social science never really falsified or rejected
  - Reformulation
- Lack of articulation between theories
  - Physics = quest of higher level theories
    - Research front: "Theory of everything" articulating Einsteinian gravity with 3 basic interaction in particle physics
  - Social science: articulation/upper level theories ==> little interest
- The role of history of ideas and founding fathers
  - Symptom or solution to the cumulativity problem
- A fractal evolution à la Abbott

II. Empirical difficulties

- Uniqueness versus typicality
- Typicality as the result of a process of standardization and reduction
  - Reduction: negation of all singularities
  - Reductionism is necessary for science
  - Putting things into equivalence to measure them / count them / name them / summarize
    - Factually questionable ==> relevant differences omitted
    - Morally questionable ==> Negating singularities (form of violence)
  - Counting people is not like counting sheep.
  - Statistical reduction paves way to ontological essentialism/realism
    - => cf. Quételet (Slides in appendix)

Text 1. Are social sciences singular to work on singularities?

Testart, Albert. 2020 [1991]. “Avant propos” et “1. Quelques préjugés quant aux différences entre sciences sociales et sciences physiques”, in *Essai d’épistémologie pour les sciences sociales*

(or Testart, Albert. 2020 [1991]. “Foreword” & “1. Some prejudices about the differences between social and physical sciences”, in *Essay on epistemology for the social sciences*.)

What to do with singularities?

- Reductionism/standardization not always possible/appealing
- Historians => "big historical events" singularities.
  - Colombus and the "discovery of America". French Revolution. WWII. Etc.
- Ethnography => "small events" in people's life

Explaining singular events

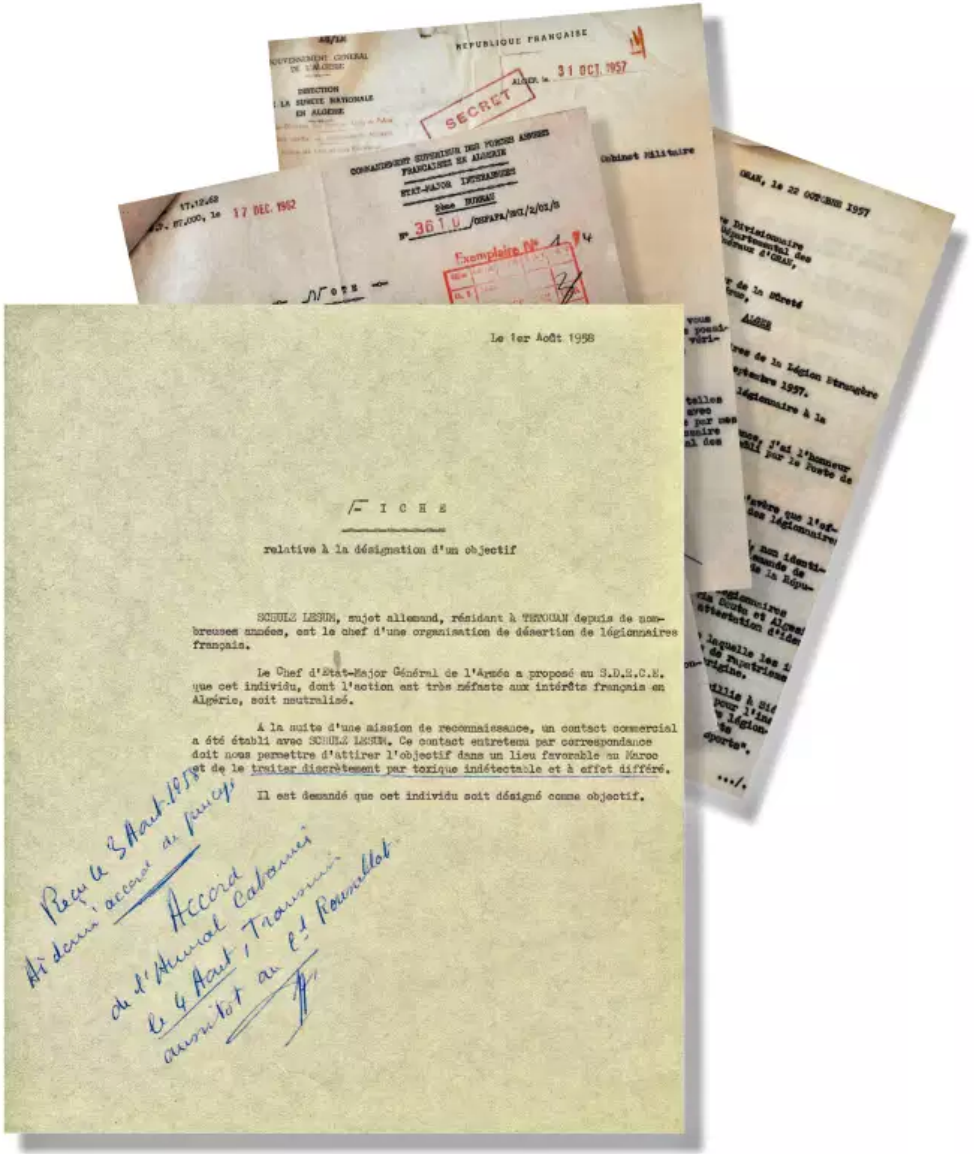
- Use existing theories
  - Consider the validity of the theory as a common knowledge
  - Event not a proof of the theory
  - Eventually an example
  - Theoretical application. No role in theory building/testing/proving
- Collapse of Genoa bridge is a singular event
  - Laws of physic could explain
- Ex. Padgett and Ansell. 1993. The rise of the medici
  - Social network=>centrality as a form of social advantage
  - Medici central in the network

Using singular events to build/corroborate a (new) theory

- Not specific to social sciences but also to crime trials
  - Poisoned Josacine affair
    - "no confessions, witnesses or formal evidence"
    - "a bundle of precise, concordant and ultimately overwhelming presumptions"
      - Josacine poisoned with cyanide
      - The wife's lover bought cyanide a few days before
      - Seen near the house

        ==> assassination with error on the target

- A singular event or a system of singular events can serve as a corroboration of a theory
- Can serve to corroborate/falsify a predictive theory
- Ex. (New) archives => a singular document corroborating a theory / or a singular document falsifying a theory
  - Brayard, *Auschwitz, enquête sur un complot nazi*



Example

- Nouzille, 2020, *Les Tueurs de la République* (reviewed in Le Monde)
- Archives of Jacques Foccart
- Assassination orders during Algerian war
  - Left: assassination order against Schulz-Lesum, German engineer organizing German soldiers desertions from French Foreigner Legion
  - Corroborate:
    - suspicions of such acts
    - Theory on State's permanent infraction to the Rule of law

The difficulty with singularities: coincidence is not correlation

- Cherry picking
  - Selection of events that is subjective
  - No totalization of all possible singularities
  - No test
- Statistically insignificant
  - Probabilistic determinism
  - With randomness, relation between two singular facts:
    - Randomness ?

      or
    - causal relations ?

Risks: Unbound interpretation

- Gombrowicz, *Cosmos*
  - Crack in the ceiling→ lips of the girl → hanged bird → priest
- Levi-Strauss, *La pensée sauvage* (1960)
  - Overdeterministic assemblage of singular elements
  - No Occam Rule
  - No law of excluded middle
    - (law: A statement is true or its negation is true)

- Conspiracy theory
  - https://www.youtube.com/watch?v=xTA6nGSdkYE

Text 2. Manipulation in economics

Card, David. “Model-Based or Design-Based? Methodological Approaches in Empirical Micro” The University of MIchigan's 2012 Woytinsky Lecture, https://www.youtube.com/watch?v=S6xSEiB6E2s

+ Card, David. "Design-Based Research in Empirical Microeconomics." *American Economic Review* 112.6 (2022): 1773-81.

The lack of manipulability

- Classical opposition between "experimental sciences" and "social sciences"
  - Experimental sciences
    - Physics / Biology / Medicine
  - Social Sciences
    - Notably in History and Sociology
    - Cf. Durkheim
- This opposition is partly inaccurate:
  - experimental tradition in psychology and Social-psychology
  - Peirce invents RCT
- Credibility revolution in economics 1990s
  - Experimental economics
  - Even in sociology:
    - audit studies; vignette experiments; field experiments

Experimentalism will only remain a limited part of the social sciences

- Mainly short term, micro and behavioral topics
- Internal validity, but limited external validity
  - Experience in a given period, country, social group
  - Replicability limitation
  - behaviors in labs ≠ behaviors in life
- Macro and long term phenomena difficult to test
  - Institutions / States / Political regimes / Historical facts, etc.
- Situation not specific to social sciences
  - Experiments limited in astronomy, geology, etc.

Observational covariations as a second best

- Provided statistical reductionism accepted
  - Methods of co-variations (Durkheim, but also Friedman, etc.)
  - Without scientific manipulation
  - Statistical methods (econometrics)
  - Common to many (almost all) empirical sciences.
- Limits of the statistical demonstration
  - Counfouding variables
    - Internal validity problem
  - External validity problem

Text 3. Sociology of knowledge when knowledge is embedded in society

Elias, Norbert. 1971. “Sociology of knowledge: New perspectives Part I ”, *Sociology* 5 (2): 149-168. and “ Ibidem Part II”. *Sociology* 5 (3): 355-370.

III. The embeddedness of social sciences in society

- The researcher is embedded in her/his object
  - Similar (biology) and different from natural sciences (physics)
  - Degree of proximity much larger
  - Distancing difficult
- Religious/Political/Moral values
  - Risk of legitimizing what you are and denouncing the groups you dislike
  - Political background of theories strong
    - Cf. Economics
    - Describing is prescribing (Bourdieu)

Social Sciences and the Theory effect

- Theory effect / Performativity
  - Formulated first by Bourdieu (1982). Callon (1998); MacKenzie (2006)
  - In Social Sciences, theories have effects on the reality described

    "In short, social science must include in its theory of the social world a theory of the theory effect which, by helping to impose a more or less authorized way of seeing the social world, helps to construct the reality of that world" (p. 106)

- "Description" never far from "prescription"

  "This means that science is destined to exert a theory effect, but one which takes a very particular form: by expressing in a coherent and empirically valid discourse what was previously ignored, i.e. what was (according to the case in question) implicit or repressed, it transforms the representation of the social world as well as simultaneously transforming the social world itself, at least to the extent that it renders possible practices that conform to this transformed representation." (p. 133)

Marxism as an example of theory effects

"Even the most strictly constative scientific description is always open to the possibility of functioning in a prescriptive way, capable of contributing to its own verification by exercising a theory effect through which it helps to bring about that which it declares. Like the phrase, 'the meeting is open', the thesis, 'there are two classes', may be understood as a constative utterance or a performative utterance." (p. 134)

IV. Similar or different epistemology

- Similar
  - Exactly similar
  - With some additional difficulties
  - With some zone which are non-scientific
- Different
  - With a totally different epistemology: hermeneutics
  - Neither nomological nor hermeneutical
- Epistemological plurality and/or extended epistemology

Two cases of polar epistemologies

- Friedman, Milton. 1953. "The methodology of positive economics.", *Essays in Positive Economics*, Chicago.
- Stone, Lawrence. "The revival of narrative: reflections on a new old history." *Past & Present* 85 (1979): 3-24.

Friedman. Model first

- Theory => making predictions
- Assumptions realism (rational actor hypothesis) does not matter.
- Theory should be judged on the capacity to make good predictions even under unrealistic hypothesis

- Leaf metaphor
  - Tree maximize leaf exposure to the sun
  - Predicts leaf orientation
- The model is not realistic
- But predictions are correct

Stone. Narrative first.

- Critique of "New history" (Annales / quantitative) which (only) addresses "why questions"
  - Braudel Mediterannée. Leroy Ladurie. Paysan du Languedoc
  - With too much sophistication and little results
- Revival of narrative history
  - Example Microstoria
  - Shift from the study of circumstances" to "the study of man in circumstances":

"The quantitative and anti-anthropocentric approach of the sciences of nature from Galileo onwards has placed human sciences in an unpleasant dilemma: they must either adopt a weak scientific standard so as to be able to attain significant results, or adopt a strong scientific standard to attain results of no great importance" Carlo Ginzburg

Similar (but with additional difficulties)

- Durkheim, 1895, *Rules of sociological method*
  - Sociology study "social facts"
    - Against moral philosophy
  - "Consider social facts as things."
  - Cause of social facts "must be sought among antecedent social facts and not among the states of the individual consciousness."
  - "Breaking with prenotions"
    - Provisional definition of social phenomenon
  - Comparative/Statistical method
    - Experiment difficult

      "When the phenomena can be artificially produced at will by the observer, the method is that of experimentation proper. When, on the other hand, the production of facts is something beyond our power to command, and we can only bring them together as they have been spontaneously produced,. the method used is one of indirect experimentation, or the comparative method." (Durkheim, 1894)

Durkheim Hypothetico-deductivist (inspired by Stinchcomb)

- H1: Higher degree of individualism => higher degree of suicide
- H1 implies A1, A2, A3 (correlation between religion and suicide)
  - H1 implies A1 (Correlation between religion (Protestants vs Catholics) and suicide in Germany)
    - H1 Credible
  - H1 implies also A2 (Jews versus Christians) and A3
    - H1 more credible
- H1 implies B1, B2, B3 (correlation between family and suicide in different location)
    - H1 even more credible
- Alternative hypothesis (HA mental health) does not imply A1, A2, A3
- H1 offers a broader explanation than HA. H1 is the most convincing

Similar (but with additional difficulties)

- Bourdieu, Passeron, Chamboredon (1968)
  - Social obstacles
  - Epistemological Break => Bachelard + Durkheim
  - Academic obstacles: hierarchy of scientific objects
  - Solution: reflexivity→ position of the researcher in the field and its relation to the object
  - No hierarchy of objects

Similar (but with exclusion)

- A unique scientific method
  - "all theoretical or generalizing sciences make use of the same method, whether they are natural sciences or social sciences" (Popper, 1957)
- Distinction between general social sciences
  - Economics, sociology, political sciences
  - And historical sciences

- Typical historical events
  - Object of a theoretical economic, sociological explanation
- Unique historical events
  - Can't be really tested
  - History of unique event remains interpretative (non-scientifical)
- History is too complex (dogmatic) and unpredictable for historical laws à la Comte/Mill
  - (As a result of unpredictability of scientific progress)

A specific epistemology: Verstehen and hermeneutics (Dilthey)

- Distinction between science of nature and science of spirit
- Importation of hermeneutics from Biblical studies (Schleiermacher)
- "The natural sciences observe and explain nature, but the humanities understand human expressions of life"
- Explaining and observation. Quality of empirical proofs => data centric
- Understanding ==> involves my personal life and intelligence. I recreate meaning. Depth of meaning
- Empirical proof is not key. Multiple interpretations possible

A specific epistemology: Verstehen and hermeneutics (Weber)

- An appeal to subjective assessment

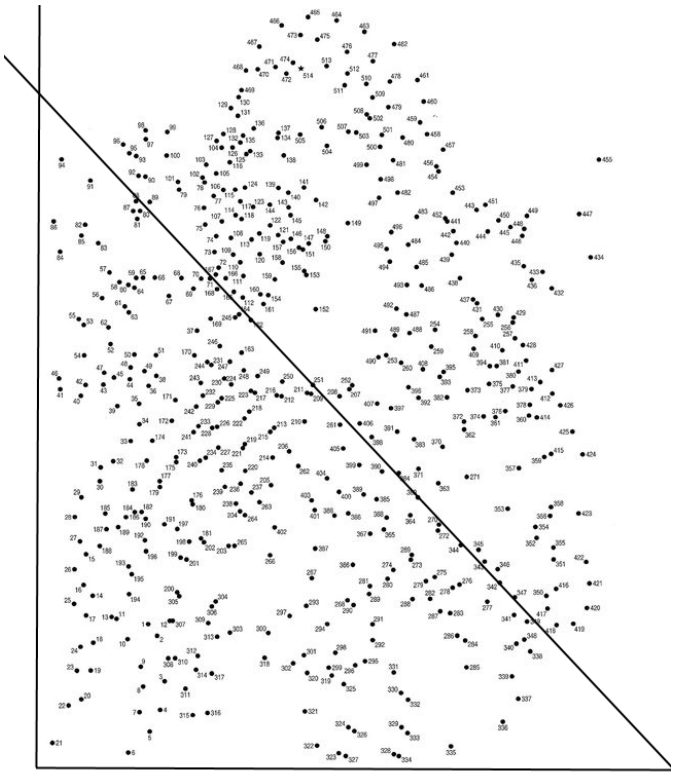
  "In the social sciences we are concerned with psychological and intellectual phenomena the empathic ("nacherlebend") understanding of which is naturally a problem of a specifically different type from those which the schemes of the exact natural sciences in general can or seek to solve"

  - Relive (nacherleben), rethink, reconstitute the subjective meaning that people give to their actions

- Doubts about causal laws in the social world
  - Heuristic virtues
  - But not fitted to complex historical events
- Idealtype as scientific tool
- No objectivity as research is always a point of view but axiologic neutrality as safeguard
- Methodenstreit context.
  - Fighting economic naturalism rather philosophical moralism (Durkheim)

Hermeneutic interpretation: linking singularities to ...

create meaning

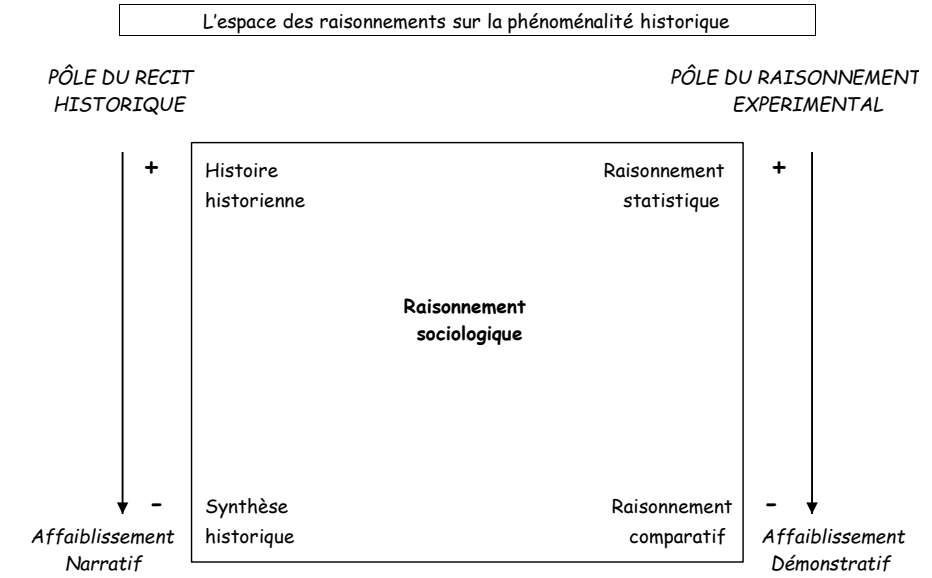


Limits of interpretism: proofs

- Multiplicity of ways of making connections
- Difficulty of proving an interpretation based on an idiosyncratic connection of singular elements, when alternative interpretation.

Between HD and hermeneutics

- Passeron, 1991
  - Specificity of historical objects
  - Hermeneutics → interpretative exemplification with no rigor
  - Nomological ideal → Misleading with historical/spatial data
  - Negative in between
  - What to do with nomological type of papers?



(Schéma proposé par Passeron p. 74)

Hard or soft epistemology?

- Very positivist
  - Strong methodology/proofs
  - Advantage: Avoid unwarranted claims
  - Limit: limitation of the type of questions investigated
- Very interpretativist
  - Advantage make sense of large domains
  - Limit: risk of unwarranted claims

My twitter answer…

https://twitter.com/OlivierGodechot/status/1435966561752256527

Towards an integrated epistemology?

- Science as a combination
  - Soft epistemology
    - Observation
    - Interpretation of observations
  - Hard epistemology
    - Generalization
    - Testing of theory
- Different moments in sociological theory building
- Quite large space for most of sociological activity
- Limit of integration
  - Scientific domains not interested in explaining but rethinking
  - Implicit hierarchy in proof administration and in theoretical depth?

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- Weber. "Objectivity in social science and social policy" 1949 [1906].

Appendices

Quetelet and the average men: From astronomy to social science

- Quételet's notion of the average man

  «The man I am considering here is, in society, the **analogue of the center of gravity** in bodies; he is the average around which the **social elements oscillate**: he will be, if you will, **a fictitious being** for whom all things will happen in accordance with the **average results** obtained for society. If one seeks to establish, as it were, the bases of a social physics, it is he who must be considered, **without stopping at particular cases or anomalies**, and without investigating whether such and such an individual can take a greater or lesser development in one of his faculties. » (Quételet, 1835 – DeepL translated)

- Importation of astrological statistics into sociology

Quételet's ontology

- Quételet, 1846, *Lettres à S.A.R. le duc régnant de Saxe-Coburg et Gotha: sur la Théorie des Probabilités appliquées aux sciences morales et politiques,* Google books
- Letter 19. Application of mean to astronomy.
  - The measure of the position of the position of a star is always subject to error.
  - The average of many measures is a good estimator of the position of a star.
- Letter 20 : Applying to social world.
  - Step 1. Measuring the chest of a gladiator statue :
    - Not easy
    - Measuring ten time won't get identical measures
    - Measuring 1000 time. Mean not far from the true measure
    - Measures would have normal distribution

Quételet. From statues to people

- Step 2. Measuring the chest of one living person
  - Risk of error bigger because of respiration
  - Here again the mean of many measures gives the true measure
- Step 3. 1000 copies of the gladiator statue
  - Here again the average could give the true measure
  - Experience… ridiculous ? Introduce the idea that it exist already through 1000 living copies of a fictive statue

« I see your Highness smiling; she will undoubtedly say to me that such assertions will not compromise me, since one will not be **ready to try the experiment**. (...) Perhaps I will surprise her by saying that the **experiment is ready-made**. Yes, indeed, more than a thousand copies of a statue have been measured, which I will not assure you is that of the gladiator, but which, in any case, is not very far from it: these copies were even alive (...) In the 13th volume of the Edinburgh medical journal are found the results of **5,738 measurements taken on the chests of the soldiers of the various Scottish regiments**. (…)

It shows us that things happen absolutely as if the breasts that were measured **had been modeled on the same type, on the same individual, ideal** if you will, but whose proportions we can grasp by sufficiently prolonged experience. » (DeepL (c) translated)

Quételet and the idealistic leap

- Inversion of reality, truth and error
  - Real individuals are "errors"
  - Artificial aggregates (mean, statues) are "true" and "real".
- Like Plato in the cave fable
  - What is true is the idealistic model you don't see
  - What is false, imperfect, erroneous is the visible empirical reality