

the Master Argument

PhD Kolloquium WS 2012

vera bühlmann, December 11 2012

Epicurus and Intuitionism

and some deviations into context

- 7.1 First logical interpretation of the Epicurean denial of the excluded middle: the three-valued logic of Lukasiewicz; reasons for rejecting this solution.
- 7.2 Second logical interpretation of the Epicurean negation of the excluded middle: The Intuitionist System.
- 7.3 Are the Epicurean 'criteria' compatible with intuitionism?
- 7.4 Consequences of the Epicurean criteria: Plurality of hypotheses and rejection of the excluded middle.
- 7.5 Epicureanism and the Master Argument.
- 7.6 Other intuitionist conceptions of reality: Descartes and Kant.

intuitionism

consider this argument
– what is the problem?

Whatever you have not lost, you still have.
You have not lost horns.
Therefore, you still have horns.

vastness
beyond
terms

this is what brings intuitionist mindsets
so close to our situation with algebraic
structures, expressions and the
affordable solution spaces.

not fullness, *excess*

atoms falling through the void.

a world full of simulacra, some of which compose rhythmically such that they persist for a while and seem to incarnate forms

inversion
of the
perspective

what is fragile and needs explanation is not
production but *conservation*.

the problematics for Epicurus
is not how to account for the
movement / change of things,
but for the *persistence* of things.

affirmation of amphiboly

Greek *amphibios* "having a double life"
from "having two modes of existence",
being „of doubtful nature“

> like the amphibians which can live in water and air.

an *ambiguous* grammatical
structure in a sentence.

e.g. *Teenagers shouldn't be allowed to
drive. It's getting too dangerous on the
streets.*

In syntactic ambiguity, **the same sequence of words is interpreted as having different syntactic structures.** In contrast, in semantic ambiguity, the structure remains the same, but the individual words are interpreted differently

> KANT was very troubled by the amphibology in
LEIBNIZ ideas about a *characteristica universalis*.

algebraic structures can
have syntactical ambiguity
within and *among* its very
terms!

(*relative to the solution spaces one wants to afford* – how to
establish the conditions of existence and uniqueness
through the numerical domain and the fields, the respective
groups, modules, ideals)

what do we mean by
a *definition* of a term?

Problem how to
Amphiboly occurs frequently in *poetry* distinguish
literal from
figurative
meaning of
words?

when we start to
speak about
something we do
so tentatively,
metaphorically

e.g. „a ruler“,
„a record“ etc.

„a definition is an
account/formula
(logos) that
signifies an „*what it
was to be*“ of a
thing“.

we can only define the universal *essence* of a thing – never its particular
individuality! And we can only define them *comparatively, by decision
through analogy*.

universal essence – literally: *what it was to be for a thing*.
universal means „what is present in any
one instance of a natural kind“.

Problem: each thing has a telos, a fulfillment and goal inscribed in its
nature. This is what we can *define*.

DEFINITION of X (e.g. a house)

$y/x = z/D(x)$

roof / house = heaven / city -> *definition of house in terms of city*

it is what Aristotle means with attending to
the inarticulate eloquence of a thing's
nature.

assumption: Potentiality is pre-determined. One cannot become what is not
„natural“. Key problem of how to integrate technology into what we think it
means to be human.

Logic is as much part of
metaphysics and of *grammar*

> therefore the problem of *sufficient/
reasonable, absolute foundation*
in *modernity*

by positioning
opposites and
contradictions

The foundation of objective knowledge consists in *establishing the necessity*, according to which an object must be *subjected to that which it is not*.

Seeking for foundations always means to mess around with an *impertinence* put forward as a reason, in a paradoxical way, as a kind of unreasonable demand.

Gilles Deleuze, *Qu'est-ce que fonder?*

Impertinence – it means questioning what seems unquestionable.

a problem literally means an **aporia**, *where there is no way* (from *a-*, privative prefix + *poros* "passage")

we perceive a thing of which we don't know what it is. We try to characterize it in a way such that others can also refer to it. To give such a description in a *well-founded* manner involves a *theory of the negative*

an object must be *subjected* to *that which it is not*.

a *theory of the negative* involves a stance about a notion of wholeness

any one of these stances has different assumptions about whether and how a thing can be defined
(exhaustively, deductively, approximately, etc)

is it
a totality (sum)
an absolute
a unity
negative – chaos
an order of collective forms
etc.

how can it be deciphered *everything is number, element, atom, form, sign, symbol ...*

how can it be reflected *as absolute, as authoritative, as probable, as revelatory, as rewarded knowledge ?*

there are *different principles*
governing the *domains* that can be *founded*

but *fullness* of a „background“
dimension is the key assumption to
all of them for gaining a notion of
causality and understanding of
coherence:

the void (and a will)
a continous magnitude
a determined course of events

the first principle for philosophical
method is and has been for most
stances the *Law of the Excluded Middle*.

we saw in the MASTER ARGUMENT how to
establish this first principle can be pursued by
very different notions of time and space
(continuous, discrete, linear, circular etc)
leading to very different systems.

> *they were all establishing foundations, or in the terms from just now:
the necessity to subject the object of understanding to its negative.*

Intuitionism

Epicurus

inverted all this – his programmatics is not that of a foundationalism

Michel Serres wrote
a beautiful book on
Epicur and
Archimedes
- in the library (and
available as pdf)



1
2
3

there *is* the void +

there is *an excess* of happenings (the fall of the atoms) +

our understanding can be neither *exhaustive* nor *detached*

> nevertheless, we do not understand *nothing* – and this
is the puzzle.

the domains of knowledge must be *conquered* and a
subject matter (object) must be *mastered*!

applied science
not *pure* science

techné and *ars*

Also the *first principles* cannot be
simply be established as a
foundation, they must be
comparable in their consequences.

the postulational method!
indirect

projection of the mind

scientific hypothesis

But of that there is **no direct confirmation** if it is true, but **only non-falsification** through something **sensibly evident** resulting from it by clearly understood principles.

Take, for example, the question of the speed of the atoms and the *eidola* in the void.

"Next, no observation falsifies the theory that the *eidola* (idols) are of maximum fineness: hence they have maximum speed, since they all have a path big enough to ensure that nothing collides, or few things collide...".

Aristotle held that the speed with which bodies move through a medium varies with the weight of the bodies and the density of the medium. Void has no density at all, so that the speed of motion through a void can have no ratio to other speeds at all. Since this is impossible, Aristotle argues that there is no void.

Epicurus inverts this argument

there is a void, so atoms move through it at 'inconceivable' speed. They do not, of course, move at infinite speed; but their speed is such that it cannot be related at all to the speed of observable motion. (Vuillemin, p. NN)

This is a remarkable argument

Let p be 'there is a void' and q be 'the speed of the motion of atoms through a void has no ratio to the speed of observable motion'.

Epicurus and Aristotle both admit the thesis:

If p, then q.

YET ARISTOTLE MAKES A CONCLUSION HE ACCEPTS AS A PRINCIPLE, WHILE EPICUR CREATES A MODEL INSTEAD OF **ESTABLISHING A DOMAIN GOVERNED BY A PRINCIPLE**

„from the
impossible,
nothing
possible can
follow“

(2nd premise of the MA)

ARISTOTLE'S reasoning

He concludes from the impossibility of a speed having no ratio to observable speeds, that there follows the impossibility of the void. This is precisely an application of the Master Argument's second premise interpreted as a thesis of pure modal logic. *reductio argument*

EPICURUS' reasoning:

both of them must be 'inferred' from phenomena without its being possible for a reduction to the absurd to eliminate the condition *on the ground of some supposed internal impossibility* that would characterize the consequent.

But both the premises, p and q, the condition and its consequence, belong to the realm of invisible things.

The consequent *cannot be declared impossible, nor possible either*, simply on an examination of its nature.

Epicurus escapes the Master Argument and Necessity by discrediting the 2nd premise of the MA

for Aristotle

What is at stake with not granting the validity of *reductio arguments*?

A deduction is **perfect** if it “needs no external term in order to show the necessary result”

it **doesn't need to be mediated** by a more abstract common factor, like apple and pear from fruit.

> *no need for proof/demonstration*

A deduction is **imperfect** if it “needs one or several terms in addition that are necessary because of the terms supposed, but were not assumed through premises”

> *no need for proof/demonstration*

Perfection through *reduction*

The imperfect deductions **must be reduced** (anagein) each case **to one of the perfect forms** and

ad deiktikos — through pointing

ad absurdum — through showing that otherwise there arises a contradiction to something already affirmed.

ad ekthesis — the method of setting a stage (plausible conditions)

Projection through *completion*

this method assumes there is NO SUITABLE *reduction* possible and sets out to construct the conditions that would be necessary for completing the deduction to a perfect one: **it alters the terms through „addition and elimination procedures“ we know from algebraic equations.**

The scholastics called this the »syllogismus expositivus«, »cuius praemissae sunt singulares«

getting done with the compromise of allowing

margins of uncertainty

once you can count,
you immediately see that
4 + 8 is not 13.

This is the same with everything we
master. There is a sense of
proportion guiding our expectations
through that. It is crucial for
inception and *having ideas*.

allow for
problems which are
awaiting confirmation

knots that are not yet untied

*two notions for the
mind that go in
parallel, competition,
subordination or even
elimination
throughout the entire
history of philosophy*

Gk. *nous* the mind's eye, intellect, intuition

Gk. *dianoia* ratio, method, calculation

clear sight
leaves no
room for that –
either it is true
or false !

yet

the „*sight*“ of „*intuitionism*“
is *not empiricism* in the
straight forward sense: it
involves *intellection*.

Gk. *dianoia*

ratio, method, calculation, result of discipline,
teachable through dialog

literally something like „seeing through“
in Socratic and Platonic philosophy, this *creates a
common basis for learning*: every human has „seen“
these „templates“ prior to being born.

cave allegory.

how to communicate such knowledge ?
the same is a problem for Plato as well -
thats why in his Academy, no one was
allowed to speak during the first 5 years
until he masters the education
qualifying him as a dialectical teacher.

- > raising of an *esoteric elite class*
– Plato's *philosopher King*

Gk. *nous*

the mind's eye, intellect, intuition
was related to individual – non-common ability,
often legitimated as a (divine) gift or revelation.

not immediately sharable, intersubjective.

Related to Knowing as Mastership – you have a different
power and responsibility if you master abstractions.

Problem

how to communicate such knowledge ?

setting with idiosyncrasis!

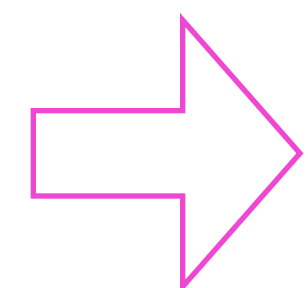
Gk. ἰδιοσυγκρασία [idiosynkrasía]
"a peculiar temperament", "habit of body" "one's own",
σύν, [syn] "with" and κρᾶσις [krisis] "mixture".

excursus **calculus** **universalis**

the idea of an
ars inveniendi,
also called
topica universalis

wants to make *nous*
available to anybody: *percipio*
mechanize the capability *intellectualis*
of finding fruitful
hypothesis

Problem: not one worldview can
be the politically correct one.
Chaos and loss of control. Power
is not to *stable communities of*
discourse, but to *individuals*



the integration of the new is
always also violent to the
established structures.

mathesis

universal method

power to anyone for affirming ones life

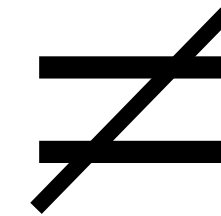
cu would offer liberty to everyone.

*key idea: make use of the fictional quantities
(infinitesimals, imaginaries) through this promise
as a legitimization*

universal method means nothing poses, in principle, an insoluble problem anymore

Car si nous l'avions telle que je la conçois, nous
pourrions raisonner en metaphysique et en morale au
peu pres comme en Geometrie et en Analyse.

(Leibniz 1890)



*the same words with
different assumptions mean
very different things !*

logicism

axiomatic

foundation of mathematics

*cu would offer a universal police-function for
reasoning at large.*

*key idea: subject the fictional quantities to the
postulated logical atoms*

*absolute axiomatic foundation (Principia Mathematica) means it is clearly determinable in
principle which problems are reasonable (feasible) and which not.*

If we had it [a characteristica universalis], we should be
able to reason in metaphysics and morals in much the
same way as in geometry and analysis.

(Russell 1900)

„In this sense there is a *mathesis universalis* corresponding to the *universality of the dialectic*. If Ideas are the differentials of thought, there is a differential calculus corresponding to each Idea, an alphabet of what it means to think. Differential calculus is not the unimaginative calculus of the utilitarian, the crude arithmetic calculus which subordinates thought to other things or to other ends, but the *algebra of pure thought*, the superior *irony of problems* themselves – the only calculus ‘beyond good and evil’. This entire adventurous character of Ideas remains to be described.“

Gilles Deleuze (*Difference and Repetition* 1968)

*not the sublime will, order,
predicament, or game*

But an Irony of Problems beyond good and evil

irony

Aristotle: 'saying less than is meant'

Wikipedia

"any definition of irony—though hundreds might be given, and very few of them would be accepted—must include this, *that the surface meaning and the underlying meaning of what is said are not the same.*"

> **really complicated question**

how to integrate social forms of stability and sanctioning such that it were possible to affirm a constitutive 'incompleteness' of understanding without delegating responsibility for action to an outside institution ...

..... a large part in Vuillemin's chapter on Epicurus and intuitionism discusses the philosophical problem of evil.

cynicism, absurdity, (existentialism)

the problem of morality today is not an ivory tower issue ...

KARL MARX, ca 1830

bureaucracy as
the *ideal state*
next to the
real state –
bureaucracy as
the „Spiritualism
of the State“

„... every thing has a double meaning: a real one and a bureaucratic one, just like knowledge is double, real and burcreatic, so is also the will. Bureaucracy owns (besitzt) the state apparatus, this spiritual essence of society. It is its private property. The general intellect of bureaucracy is the secret, the mystery, conserved within itself, in the closed corporation of its hierarchy, towards the outside. An openly revealed spirit of the State Apparatus appears to bureaucracy like a betrayl to its mystery. Authority is, therefore, the principle of its knowledge, and the deification of its authority is its ethos (Gesinnung). Within itself (bureaucracy), this spiritualism turns into a crude materialism, a materialism of passive obedience, of devote subjection to authority, the mechanism of rapid formal action, fixed foundations (principles), traditions and intuitions (Anschauungen).“

(my own translation)

Paolo Virno – *the General Intellect, Grammar of the Multitude*, etc.

back to Epicurus and Vuillemin

a problem is a *knot*

topology can be understood as the means for posing solutionspaces for knotted subject matters.

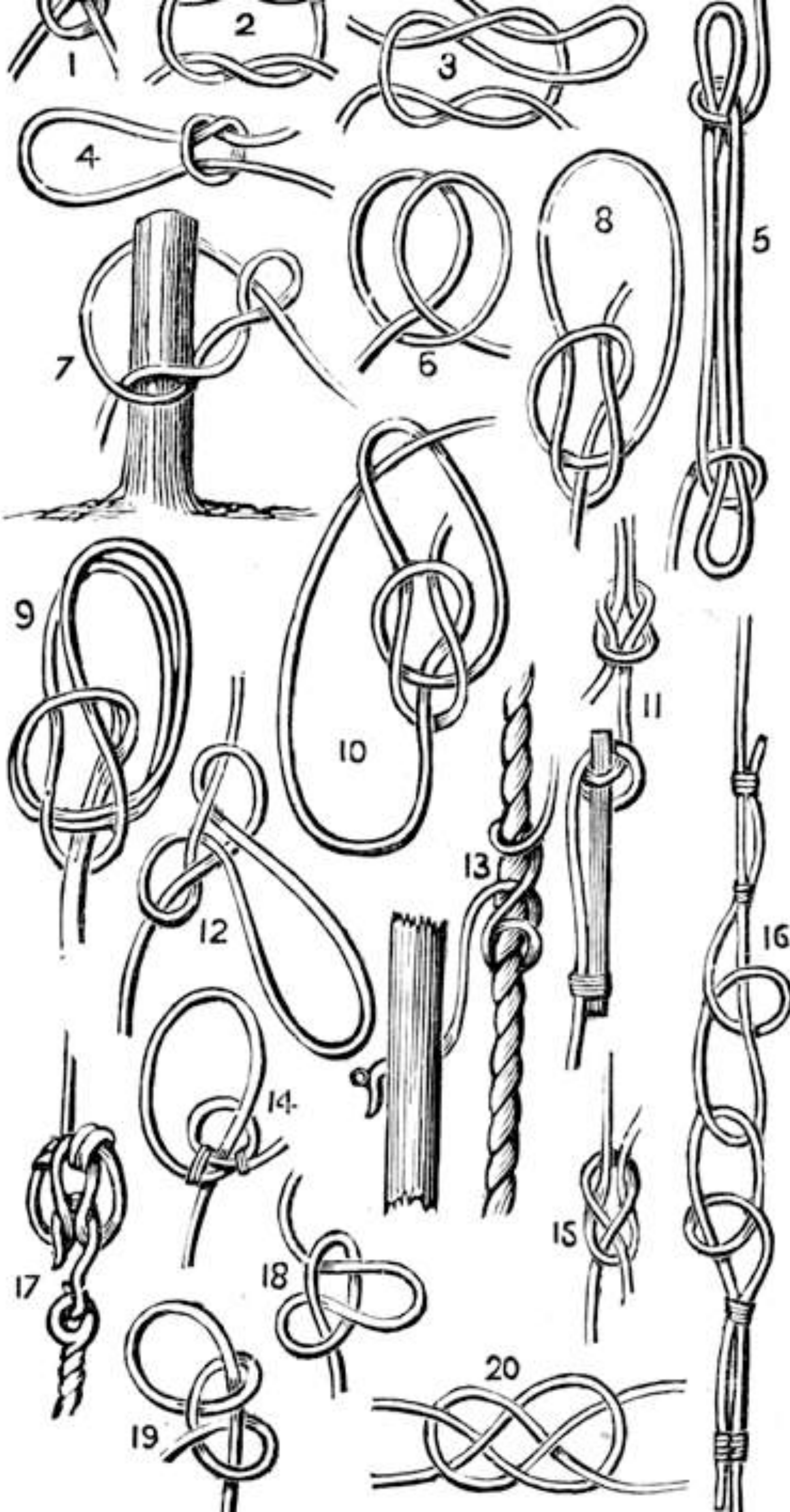
> generalizing Topics ?

Topics was that part of analytics which dealt, in pre-modern logics, with *probable* knowledge and *issues of authority*. It complemented grammatical and metaphysical aspects in dealing with terminology and arguments.

*this was the main point of critique on intuitionism (intellectual intuitionism, not trivially empirical intuitionism): **knowledge cannot be separated from mastership**. Mastership deserves authority. This opens the doors for non-controllable misuse.*

*mastering abstraction means conquering a continent. It means governing you subject matter.
But what kind of governance could that be?*

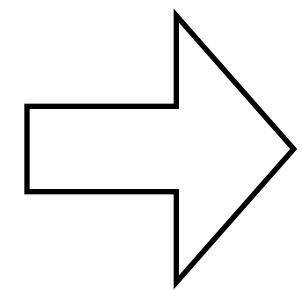
> *the importance of Michel Foucault: Self-Governance, Gouvernementality, Biopower*



generalizable

Topicality

topics works *only with indirect methods*
– postulations and demonstrations.



would provide the general
instrumentarium (organon)
for a

topometrics

topomechanics

topophysics

topocalculus

topocharacteristics

topopoetics

topology

topogrammar

etc.

If a demonstration is not graspable,
it is neither false nor true but simply
offers a solution and indirectly poses
*a problem continuing to await
proper solutions.*

close to Popper's Positivism, yet not sharing
Popper's disgust and categorical hygienic
programmatics against the activity of the subject in
thinking.

(what he calls *psychologistics*. cf his *theory of three
worlds* – Beethoven's symphony as a cultural artifact
yet stripped of any aspect of artistic mastership)

an experiment in thought!

polynomials integrate
segments of series into finite
and complex order – they
allow to arrange and analyze
(rigorously) lines in
discontinuous manner

polynomials
incarnate
complex and
heterogenous
terms that allow
resolution into
ideal spaces of
symbolic
numerosity

algebraic grammaticality

an experiment in thought!

natures of the
members of
series

members of
series *captured*
in structured
orders (by code)

members
of series
balanced in the
generic by our
intellection

WELT
now. domain des essentiellen - regiert vom *princip der identität*
there. domain des existentiellen - regiert vom *princip des zureichenden grundes*
here. domain des insistentiellen - regiert vom *princip der erhaltungssätze* (gegensätze
konservieren etwas invariantes, ein wert). .

ALPHABETE
domain des kontinuierlichen - regiert vom Prinzip des Widerspruch
domain des diskreten - regiert vom Prinzip des überbrückenden Erzählens
domain des aufführten - regiert vom Prinzip des Dramatischen
domain des verdichteten - regiert vom Prinzip des Poetischen
domain des affirmierten - regiert vom Prinzip Tragischen
domain des negierten - regiert vom Prinzip des Komödialen
domain des infinitisierten - regiert vom Prinzip des Approximativen
domain des invertierten - regiert vom Prinzip des Verses (from turning, bending, plowing)
domain des fortgesetzten - regiert vom Prinzip des Glaubens
domain des repetitiven - regiert vom Prinzip der Wertschätzung
domain des eingliedernden – regiert vom Prinzip der Verfassung
domain des ausgeklammerten – regiert vom Prinzip der Analogie
domain des weggekürzten – regiert vom Prinzip der Hygiene
domain des restes – regiert vom Prinzip des Kompromisses
domain des hinzugefügten – regiert vom Prinzip des Begehrens
domain des bereitgestellten - regiert vom Prinzip der Sorgfalt
domain des zusammengefassten - regiert vom Prinzip der Grosszügigkeit
domain des öffentlichen – regiert vom Prinzip des Dienstes
domain des geradeaus – regiert vom Prinzip der Prosa
domain des animierten - regiert vom Prinzip der Lithurgie

GEBURTlichkeit / NATALITÄT
domain des Wahren - regiert vom Prinzip der inartikulierten Eleganz
domain des Falschen - regiert vom Prinzip des Zwangs (coercion)
domain des Dummen - regiert vom Prinzip der Zustimmung (Feind von Zumutungen)
domain des Gesunden - regiert vom Prinzip der Gloriosen
domain des Kranken - regiert vom Prinzip der Anspruchs (Rechts)

members of
series captured
in a state

ZUSAMMENSETZUNG

domain des vollen – regiert vom ökonomischen prinzip
domain des gezäumten (Palisaden) - regiert vom Prinzip des Politischen
domain des integrierten - regiert vom Prinzip der logik
domain des etablierten - regiert von Prinzip der grammatik
domain des differenzierten - regiert vom Prinzip der analytik
domain des gefügten - regiert vom Prinzip der synthese
domain des zusammenspielenden - regiert vom Prinzip der mechanik
domain des geborgenen - (Arc, Stoa, Column) regiert vom Prinzip der Architektur
domain des freigestellten - regiert von vom Prinzip Institution
domain des legitimen - regiert vom Prinzip des Rechts
domain des eingeforderten - regiert vom Prinzip der Pflicht

members of
series
proportioned
in the
pre-specific

TEMPERAMENT

domain des Vorgreifenden – regiert vom Prinzip des Überschwänglichen
domain des Verlässlichen – regiert vom Prinzip des Genauen
domain des Ehrgeizigen – regiert vom Prinzip des Zögernden
domain des Aspektualen – regiert vom Prinzip des Kritischen
domain des Bewahrenden – regiert vom Prinzip des Getriebenen
domain des Interessanten – regiert vom Prinzip des Gelangweilten
domain des Unterhaltenden – regiert vom Prinzip des Amusanten
domain des Zärtlichen – regiert vom Prinzip des Ganzen
domain des Subtilen – regiert vom Prinzip des Verfänglichen
domain des Grausamen – regiert vom Prinzip des Rohen

members of series
modularized into
manners of
addressing

KATEGORIALITÄT

domain des Begrifflichen - regiert vom Prinzip des Terminierbaren
domain des Aussagbaren - regiert vom Prinzip des Variablen
domain des Aufzeigbaren - regiert vom Prinzip des Demonstrierbaren
domain des Anschaulichen - regiert vom Prinzip des Vertrauten
domain des Fassbaren - regiert vom Prinzip des Symbolisierbaren
domain des Auflösens - regiert vom Prinzip des Zählbaren
domain des Erwägens - regiert vom Prinzip des Gewichtens
domain des Vorstellens - regiert vom Prinzip der Ansprache
domain des Ausblendens - regiert vom Prinzip der Einschätzung
domain des Tabuisierens - regiert vom Prinzip der Weihung
domain des Aussparens - regiert vom Prinzip der Preisung

an experiment in thought !

