Ludger Hovestadt

Cogito

we now proceed with MATHEMATICS,
the royal path to knowledge,
because it is uncorrupted by any
pragmatics.

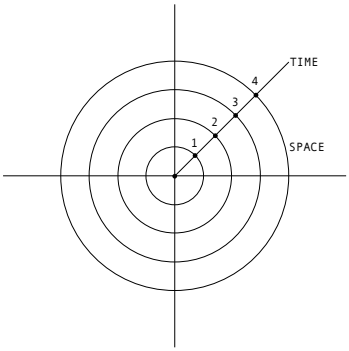
first lesson:
EXPONENTIAL GROWTH
is a fake story.

SPACE and TIME

NUMBERS and ORTHOGONALITY

there is a primary distinction in
mathematics
between geometry and harmonics,
between, i would suggest for architects,
SPACE and TIME,
even if they are showing up for example as
the time and frequency domains.

circles exploring space.
they are passing by
like waves created by a drop in the water.
lines counting waves in time.
lines do not meet waves,
as time does not meet space.
you can HEAR the waves and with them
the space at a point in time.
and you can SEE the time along a line
cutting space.
but you cannot see what you hear
and you cannot hear what you see.

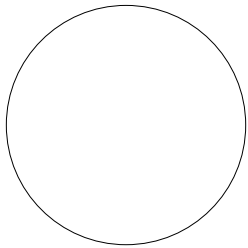


there is always INTELLIGENCE involved:
to hear time creates MEANING,
to see space makes SENSE.

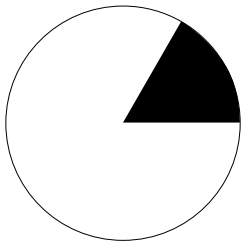
at night, at home,
you are encircled in space,
seeing time in repetitions
to analyse the origin of space.

during the day, out there,
you are lined up in time,
hearing the spatial synchronicity
of the elements
to explore the right way in time.

now go to our mathematical instruments;
this is a whole, a unity,
your home at night:



and this is a part of it:



the unity is the space of your home,
the partition shows the time passing by.

and this is how to measure it with a
NUMBER:

1/6

both numbers are not of the same kind.
the NUMERATOR is counting PARTS
in time,
the DENOMINATOR represents the fiction
of a UNITY of space in a pragmatic
refinement.

the numerator plays at night,
the denominator is the memory of the day.

it is like that with all numbers:
with even and odd numbers,

2, 3

or with the real and the imaginary parts of
complex numbers,

2.3 + 3.1 i

the one is the fiction of the last day's
irrational circularity of the spatial world
out there,
the other is the sequence of operations in
time at night and at home.

1750 and the last sunset

the euler number brings home
the idea of the space of the last day:

e = 1/0! + 1/1! + 1/2! + 1/3! + 1/4! + 1/5! + 1/6!
+ 1/7! ...

N[**e**, 100]

2.71828182845904523536028747135266249
77572470936999595749669676277240766
30353547594571382178525166427

e is the engine that runs your home,
it rotates time over night.
the euler number makes
the chronological partition in time real.
with the euler number
the calculus becomes productive and real.
the euler number creates meaning.

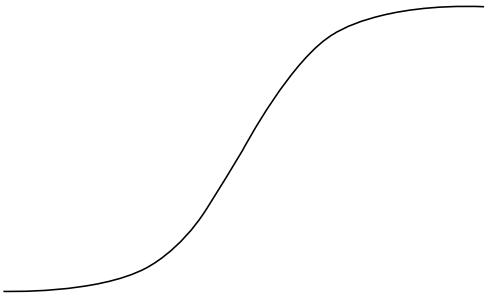
this is what we call
education,
refinement,
optimisation,
the quest for beauty,
enlightenment...

this is how the engine works at night over time at home:
QUALITATIVE GROWTH
or the learning curve.

f[t_] := 1/(1 + **e**^(-k G t) (G/f0-1))

G = 1; k = 1; f0 = .5;

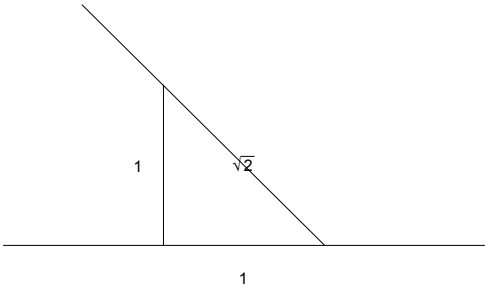
Plot[f[x], {x, -6, 6}, ImageSize → 128, Axes → False]



all
classifications (darwin),
constructions,
productions
and infrastructures
work like that.
they are educated and real
and they never find an end in time.
they run towards infinity,
they operate within the eternal infinity of a circle.

1900 and the last sunrise

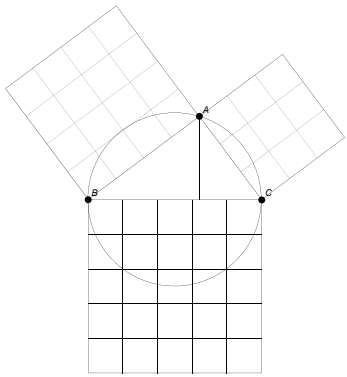
a sunrise, on the other hand, is not about new numbers.
at the beginning of a new day, outside, under the sun,
out there you have to affirm
that the reality of your chronological calculus at home
is not of primary importance.
you step out into the sunlight of a new day
and you see the strong shadows,
and you see especially
that the ratio of the things
and their shadows under the sun
are beyond CALCULABILITY.
they are irrational,
not a number,
and yet obviously there.
you mark them with a symbol:



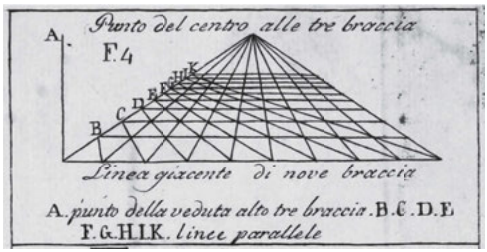
with this rucksack you can leave eternal time
of CALCULABILITY at home,
and navigate freely in space out there,
because you trust your COGITO
to navigate between the real things of numbers.
cogito ergo sum.

the three geometries

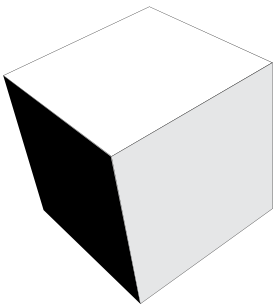
we did it with the written line in 500 BCE:
face objective things as subjects in SPACE



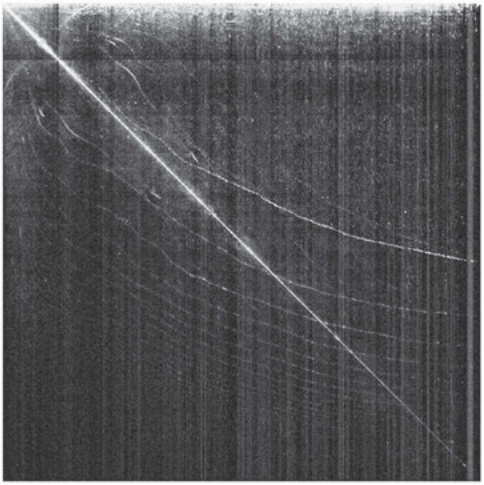
or with the horizon line in drawings around 1400 CE:
face objective things in space as moving subjects in TIME.



Leonbatista Alberti, *Della pittura e della statua*, 1436,1804.



or with the diagonal axis of the 'google matrix' today:
face objective things in time as vivid subjects in 'LIFE'.



Google matrix of Cambridge University network (2006)

Google search, 2019.

the levels of implementation of the third geometry

the GEOMETRY OF LIFE
was developed from 1880–1920.

the schemes of computing were developed around 1930:
VON NEUMANN MACHINE (1934)
follows the ATHLETICS of computing, and
alonso church's LAMBDA CALCULUS (1936)
is a model of the INTELLECT of computing.

iris van der tuin: philiosophy of science—historical turn 1962—empirical turn 1987—speculative turn 2017

1960 mainframes

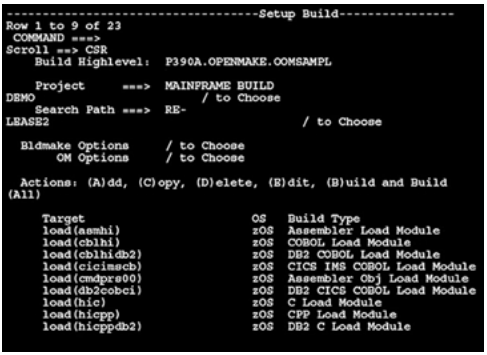
the first stage of development

body of thinking: structuralism
languages: algol, fortran, pascal...
form: to design
structure: given
principal problem: combinatorics explosion

the artefacts and their users:

UNIVAC mainframe, around 1975.

the interfaces:



Mainframe computer screen, 1970s.

the other migrants out there:

Federico Fellini, *8 1/2*, Marcello Mastroianni, 1963.

the other houses out there:

Robert Venturi, Vanna Venturi House, Chestnut Hill, Pennsylvania (1959–1964).

1980 personal computers

the second stage of development

body of thinking: post structuralism
languages: smalltalk, C++, java...
form: free
structure: to design
principal problem: the framing problem

the artefacts and their users:

Personal Computers, 1980s.

the interfaces:

Early Microsoft window system

the other migrants out there:

Steven Spielberg, *E. T.*, 1982.

the other houses out there:

Frank O. Gehry, Guggenheim Museum Bilbao, 1997.

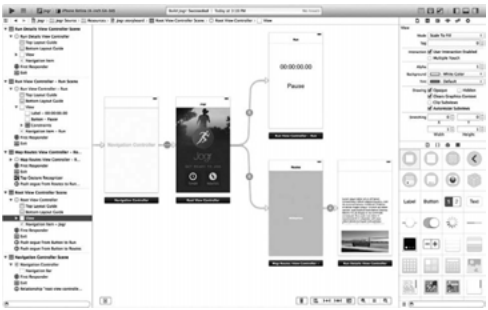
2000 the internet

the third stage of development

body of thinking: nn
languages: XML
form: free
structure: free
principal problem: what to do

the artefacts and their users:

the interfaces:



X-Code programming environment, 2018.

Windows 8, 2012.

the other migrants out there:

James Cameron, *Avatar*, 2009.

the other houses out there:

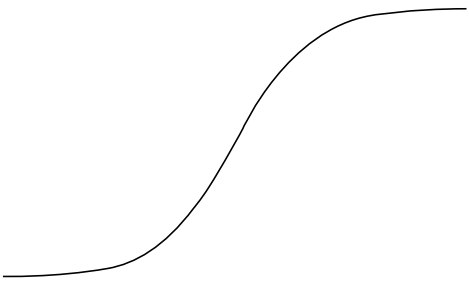
Jacques Herzog und Pierre de Meuron, Elbphilharmonie, 2017.

a categorical mistake

with the internet
we have the principal instrument to navigate without any assumptions about form or structure.
now it is time to learn how to play with it.

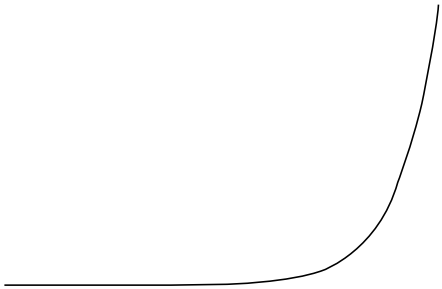
this is in fact challenging.
remember, for example, the learning curve:

```
f[t_] := 1/(1 + e^(-k G t) (G/f0-1))

G = 1; k = 1; f0 = .5;

Plot[f[x], {x, -6, 6}, ImageSize → 128,
Axes → False]
```



E is the motor to qualify space
over time at night.
if you now put E from the denominator
into the position of the numerator
from space to time,
you instantly get a feedback:
spatiality over space
like when you put a microphone in front
of its speaker.
it has nothing to do with anything
and it always ends up in a catastrophe.
this is what we call exponential growth
and this feedback is the inconvenient truth.

```
f1[t_] := N@(e^t)

Plot[f1[x], {x, -6, 6}, ImageSize → 128,
Axes → False]
```



this feedback instantly happens,
if you shortcut space and time,
if you take out intelligence,
if you think you can directly see
what you hear.

QUESTIONS so far

the question was:

B what is the source of power,
and who is in charge?

we still do not know. but we can say

1 that the LANDLORDS, whoever they are,
learned to use their cogito to navigate
in space under the sun
and to contract nature, exploring the
factor 10,000,

2 whereas the SETTLERS
stay at their cosy homes in time at night,
in balance with their sources of nature.

3 and we see fake stories of exponential
growth,
to keep the settlers stupid, staying at
home and off wealth.

we still have the question:

C what is the source of power,
and who is in charge, and

D what can we do?