

DAS STERBEN DER PYTHIA

ON HUMANS, ARTIFICIAL INTELLIGENCE AND ORACLES

EMILIO MORDINI, MD, ADULT PSYCHOANALYST
RESPONSIBLE TECHNOLOGY SAS – PARIS (FR)
UNIVERSITY OF HAIFA – HAIFA (IL)



WHAT DO YOU EXPECT
FROM A PSYCHOANALYST
INVITED TO SPEAK OF AI?

I WILL TELL YOU 3 STORIES

- 1) The counterfeiters of Sorrento
- 2) The young Pascal and the first digital calculator
- 3) Two cynic oracles



THE COUNTERFEITERS OF SORRENTO





SORRENTO, 2 YEARS AGO

- On May 16, 2017, the Italian police took down a ring of money counterfeiters in Sorrento, near to Naples.
- This event does not seem to be that remarkable, if only because counterfeiting is not rare in the Neapolitan area. There are historical reasons for that.



HISTORY

In the XIX century, Naples was an important hub for small, very sophisticated, publishing houses, skilled in off-set printing, lithography, specialized in art books and limited artist editions. As the business became increasingly controlled by major international publishers, Naples artisanal industry died. Many skilled printers found themselves unemployed and reinvented themselves in the counterfeit market. They gave birth to families of counterfeiters, handing down the knowledge for perfect counterfeiting from father to son.



300 EUROS

- Still today, some of the best counterfeiters in the world live in Naples. In 2006 a Neapolitan forgery ring put on the market in Germany a considerable amount of counterfeit euro banknotes, perfectly imitated except they were 300 euros banknotes. It is difficult to say why they did so, whether for fun or bravado: the point is that these banknotes passed as real and circulated for some months.



A SMALL RING

- The Sorrento ring was a small ring, made up of a bunch of teenagers and a few senior skilled counterfeiters, who recreated 10 euros notes, with perfect, artistic, precision. In small groups made up of one adult and some youngsters, they went in the most frequented stretches of Neapolitan coast.





The group pretended to be a class trip; the adult simulated to be a teacher and the youngsters his students. They searched for currency exchange machines. The fake teacher gave some counterfeit banknotes to the fake students, who changed them. In such a way, they succeeded in changing between 1,000 and 2,000 euro per day.

NOT PROSECUTED

- They were all arrested with charges of forgery of money, spending, and introduction of counterfeit money.
- This story would be quite trivial except for one thing: they could not be prosecuted.



BLAME THE MACHINE

- Each note bore a visible printed caption “specimen,” and they were printed scrupulously respecting Italian legal rules concerning banknote reproduction. Legally speaking, those people were not counterfeiters; it was not their fault if machines are stupid.



© BCE ECB EЦБ EZB EKP EKT EKB BĀE EBC 2014



Moraghi

10

sp

10
precimen

EURO
ΕΥΡΩ
EBPO

EURO

10

LESSON LEARNED

- Engineers can undoubtedly explain why currency exchange machines were not able to “see” the caption “specimen” and how this bug can be fixed, but this is totally irrelevant to my argument. In this story, there is an important lesson to be learned, which expressly concern AI.



THE BAMBOCCIANTI

- To understand why currency exchange machines could be so easily cheated, over and above technical bugs, one should think of the art of *Bamboccianti* (puppet makers), seventeenth-century genre painters of everyday life in Rome and Naples.
- In their landscapes, any single detail is carefully depicted with a cloying perfection, but what truly matters is the whole. You need to direct your attention to the whole to understand the sense of the painting. The same happens with this story.



A LOVELY PANTOMIME

- Think of the lovely pantomime that counterfeiters and teenagers played. Why? Were they aiming to cheat who? What were they trying to achieve? Pretending being a school trip was redundant; they did not need that trick to change banknotes, it could draw even too much attention on them. It was not a rational choice; it was pure love for staging. But could a machine ever understand the love for staging?



THE BIG PICTURE

The pantomime; the beauty of Sorrento; the history of counterfeiting in Naples; the tremendous artisanal talent with which the banknotes were counterfeited, contrasting with the limited amount of the fraud itself; the brilliant and straightforward stratagem conceived to escape the law; were all part of the same picture. *Tout se tient* (everything fits), French people say.



THE MOMENT OF THE GAZE

- Mechanical devices lack the capacity for intuition, for perceiving the atmosphere, feeling the context, appreciating the environment in a single glance, which is instead so essential to human beings.
- All machines ignore the moment of the gaze, the kairos.



THE YOUNG PASCAL AND THE FIRST DIGITAL CALCULATOR



PASCAL'S CALCULATOR

- In 1642, Blaise Pascal was 19; it is thus quite understandable that he was bored to tears to be obliged to spend his days, sometimes even his nights, helping his father, a tax collector for Upper Normandy, in interminable, grueling, calculations of taxes. Thus, the young Pascal devoted himself to a method to get free from this tedious task and to do so he invented the first digital calculator of human history.



WHAT IS AUTOMATION FOR?

- This story shows well what automation is for. Be Pascal's calculator, robots in assembly lines, currency exchange machines; it is always the same: the more a task is boring and unrewarding, the more we try to dump its burden on machines, given that human slaves do not exist any longer.



TURNING THE WORLD INTO DIGITS

- Starting with Pascal, human beings learned that they could automate most, if not all, calculations. Human beings realized that the more they became able to represent the world through digits, the more they could automate everything.
- So, the story started and has continued until now.

```
110100011101111000
011110010110001111
000110111000111100
100110001111011000
111100010110001111
011110010110001111
000110111000111100
110011010110001111
```



UNDERSTANDING LOVE

- Computational machines, from Pascal's calculator to modern computers, are not expected to understand love or appreciate irony; this is not why humans invented them.
- It is not by chance then, that the very Pascal proposed the famous distinction between *esprit de géométrie* and *esprit de finesse*.



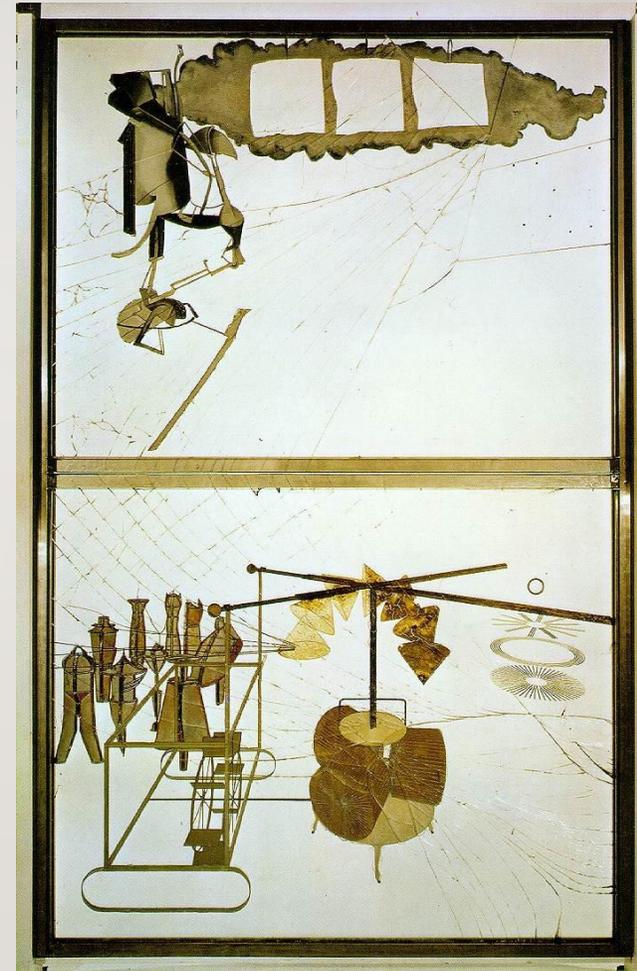


ESPRIT DE GÉOMÉTRIE AND ESPRIT DE FINESSE

- The *esprit de géométrie* is the analytic mind, which always distinguishes and dissects reality into elementary components.
- The *esprit de finesse* is intellectual finesse, the perception of those things that can't be dichotomized and analyzed; it is the feeling of the whole.
- *Esprit de géométrie* and *esprit de finesse* were conceived by Pascal as qualities of the human mind, but he would not have been probably surprised had he knew computers.

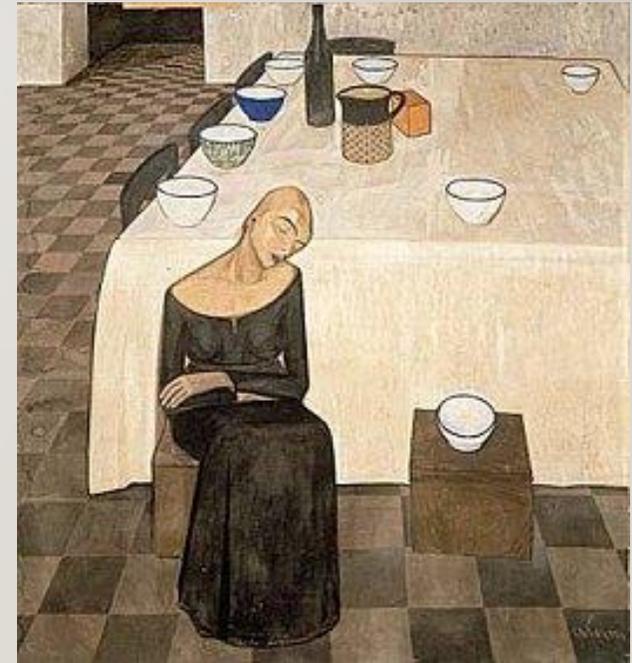
AUTOMATED *ESPRIT DE GÉOMÉTRIE*

- We succeeded in automating almost all boring operations relevant to the *esprit de géométrie*: measuring, analyzing, calculating, applying logic principles, predicting probabilities.
- Computational machines perform these tasks perfectly, usually better than humans. First generation AI – the so-called 'Good Old-Fashioned AI' (GOF AI) – makes no exception; despite its sophistication, GOF AI is still for automating analytic, dichotomic, activities.



AUTOMATED *ESPRIT DE FINESSE*

- Advanced AI, based on probabilistic learning techniques and neural networks, aims instead at a bigger game: for the first time in human history researchers and scientists are trying to automate the *esprit de finesse*.
- Many scientists and technologists predict that new AI will become more and more able to deal with emotions, sentiments, value judgment, ethics and even aesthetic; in a word, to imitate perfectly, maybe improving, human intelligence.
- Will this prophesy ever come true? Will we ever succeed in automating the *esprit de finesse*?



TWO CYNIC ORACLES



DAS STERBEN DER PYTHIA

- In 1976, Friedrich Dürrenmatt wrote the short novel "*Das Sterben der Pythia*" (The Death of the Pythia).
- The story unfolds as a dialogue between two characters, Pannychis XI, an elderly Delphic priestess at the end of her life, and Tiresias, the clairvoyant. Both cynic and unbelievers, nevertheless they are genuinely different, Pannychis "*wanted to use her oracles to mock those who believed them*"; Tiresias had a hidden political agenda instead to achieve.



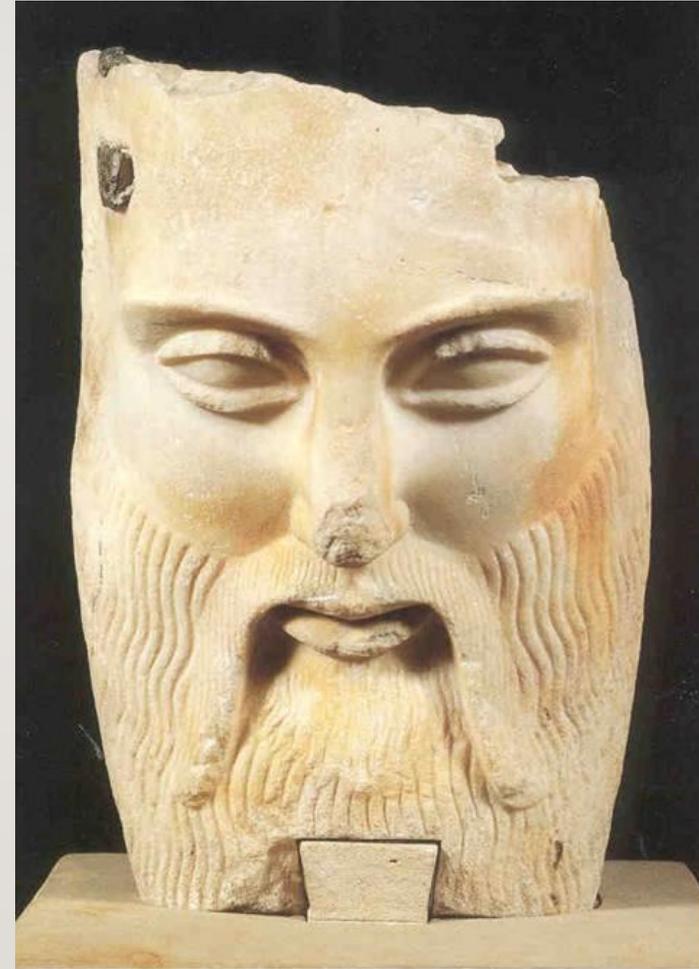
OEDIPUS

- Their conversation was about the story of Oedipus. Although in different moments, they were both asked three times to unravel his fate to Oedipus. Three times they invented.
- Pannychis "*with imagination, with whimsicality, with high spirits, even with a virtually irreverent insolence, in short: with blasphemous jocularly*"; Tiresias "*with cool reflection ..., with incorruptible logic, again in short: with reason.*"



THE FATE

- Ironically enough, all Pannychis's implausible oracles turned out to become a reality; Tiresias' manipulative and intelligent predictions had the opposite of the intended effect.
- In the end, Tiresias says to Pannychis: *"Both of us faced the same monstrous reality, which is as opaque as man, who creates it."* But Pannychis does not answer; she fades away.



TWO WAYS

The world is opaque to human reason, but there are “*reasons which reason knows nothing of.*” There are two ways in which the world is reflected in the human mind;

- on the one hand, we see the world as divided into discrete, local, events;
- on the other hand, we see the world as a homogenous, indivisible, reality.





LOOK INTO YOURSELF

- There is no need to use sophisticated arguments to demonstrate this; it is enough that each one reflects honestly on himself.
- It is easy to see that these two different perspectives coexist in our mind; we feel the world simultaneously as split into myriads of atomic facts and as a rich and varied totality.

ASYMMETRIC AND SIMMETRIC LOGICS

There are thus two logics:

- The logic of differences, the “**asymmetric logic**”, according to which A cannot be the same of non- A (principle of non-contradiction);
- The logic of wholeness, the “**symmetric logic**”, according to which A can be the same of non- A , although at a further dimensional level (principle of totality).

$$A \neq \text{non-}A$$

$$A(x) \Leftrightarrow \text{non-}A(x)$$

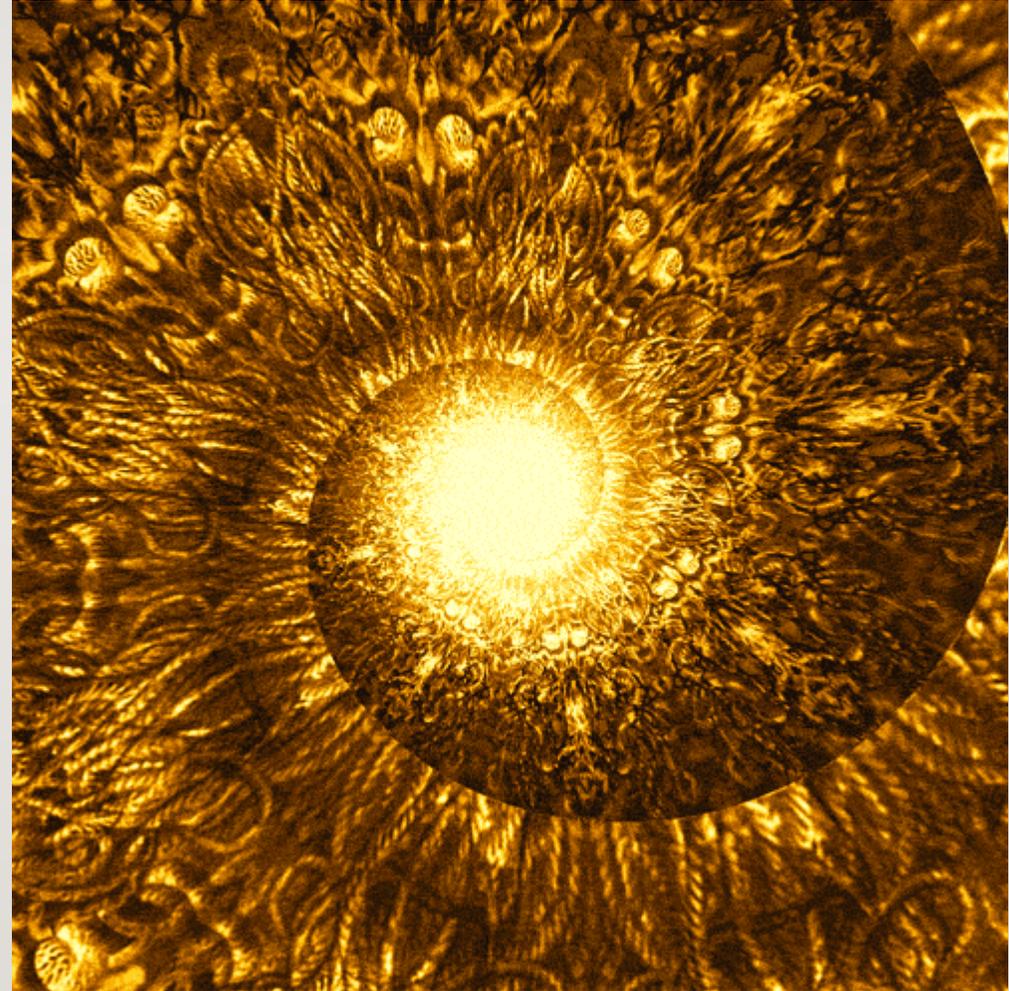
ASYMMETRIC LOGIC

- Asymmetric logic is the well-ordered representation of the world, in space and in time.
- It is standard rationality, indispensable to design a computer and build a house, to run a business, to take a train or a plane, to convene a meeting or make an appointment, and so on.



SYMMETRIC LOGIC

- Symmetric logic is the sense for what cannot be broken down (e.g., art, music, poesy, mystic, etc.), is the feeling for the whole. It is the deepest part of our mind, its primordial unconscious structure, which operates through the notions of infinite sets and classes: “*the unconscious does not know individuals but only classes or propositional functions which define the class*” (Matte Blanco 1975).



CONCLUSIONS



SYMMETRIC-LOGIC-BASED MACHINES

- Now it is possible to reformulate more precisely the question of whether we can ever accomplish to provide AI with capacity for intuition, to automate the *esprit de finesse*.
- Will machines finally learn to understand the love for staging and appreciate the grinning irony of Sorrento counterfeiterers?
- The point is whether AI can ever succeed in applying symmetric logic to its processes. If It can, then AI will become able to develop that capacity for intuition, insight, and awareness, which characterizes human beings.



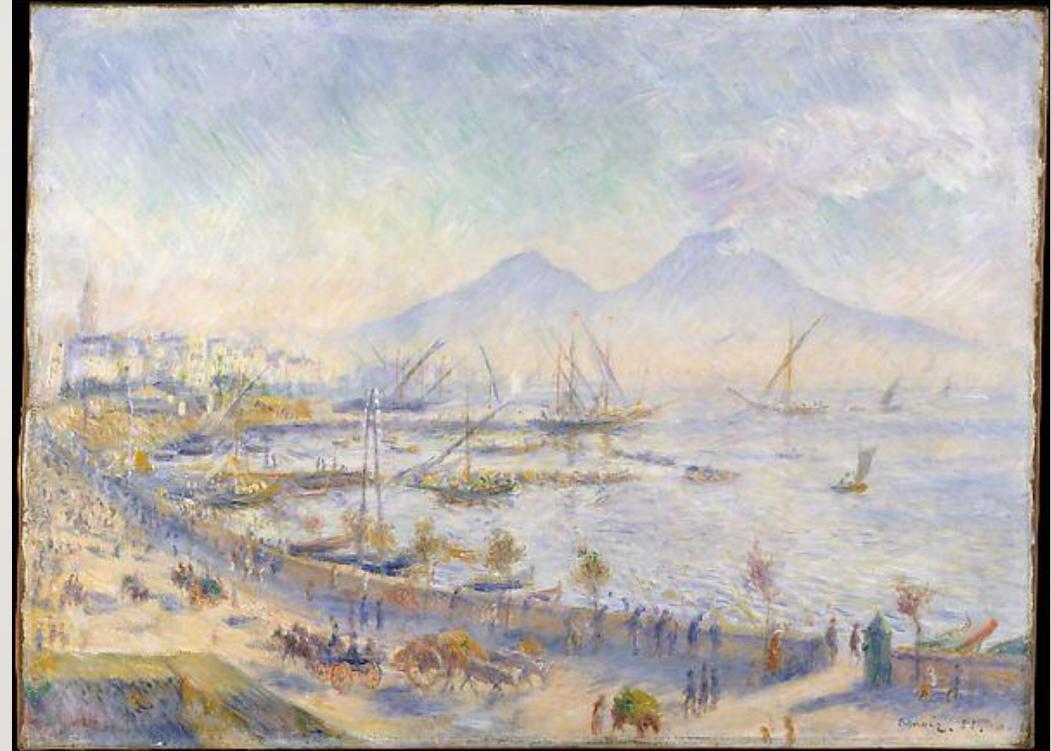
AI NEEDS DATA

- Let's start with an unarguable statement: AI needs data to work. AI based on probabilistic and stochastic processes requires even more data than GOFAI, a huger and huger amount of data.
- Data is increasingly used for doing almost everything: for discovering criminals and for preventing crimes and epidemics; for detecting emotions and sentiments; for ethical decision-making and aesthetic judgment; for predicting movements on the financial markets; and so on



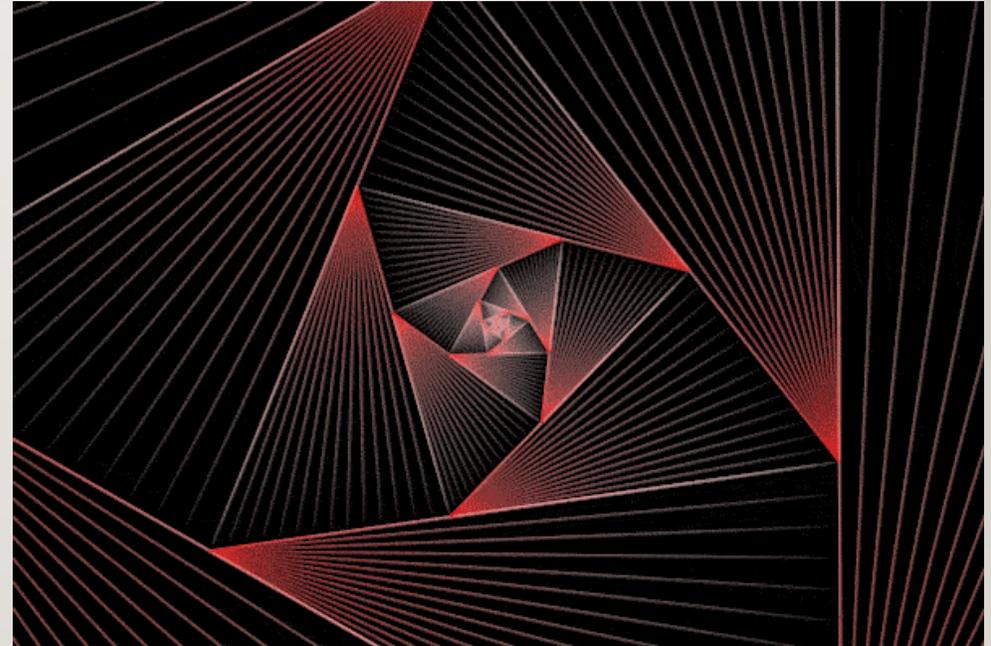
QUANTITY INTO QUALITY

- Can data be used to imitate and automate, symmetric logic? In other words, is there a limit amount of data above which quantity turns into quality, and the myriad of details becomes the whole picture?
- By accumulating countless facts, will machines become able to understand a painting of the *Bamboccianti* as though they could see it in its entirety?
- My answer is no.



THE UNBRIDGEABLE GAP

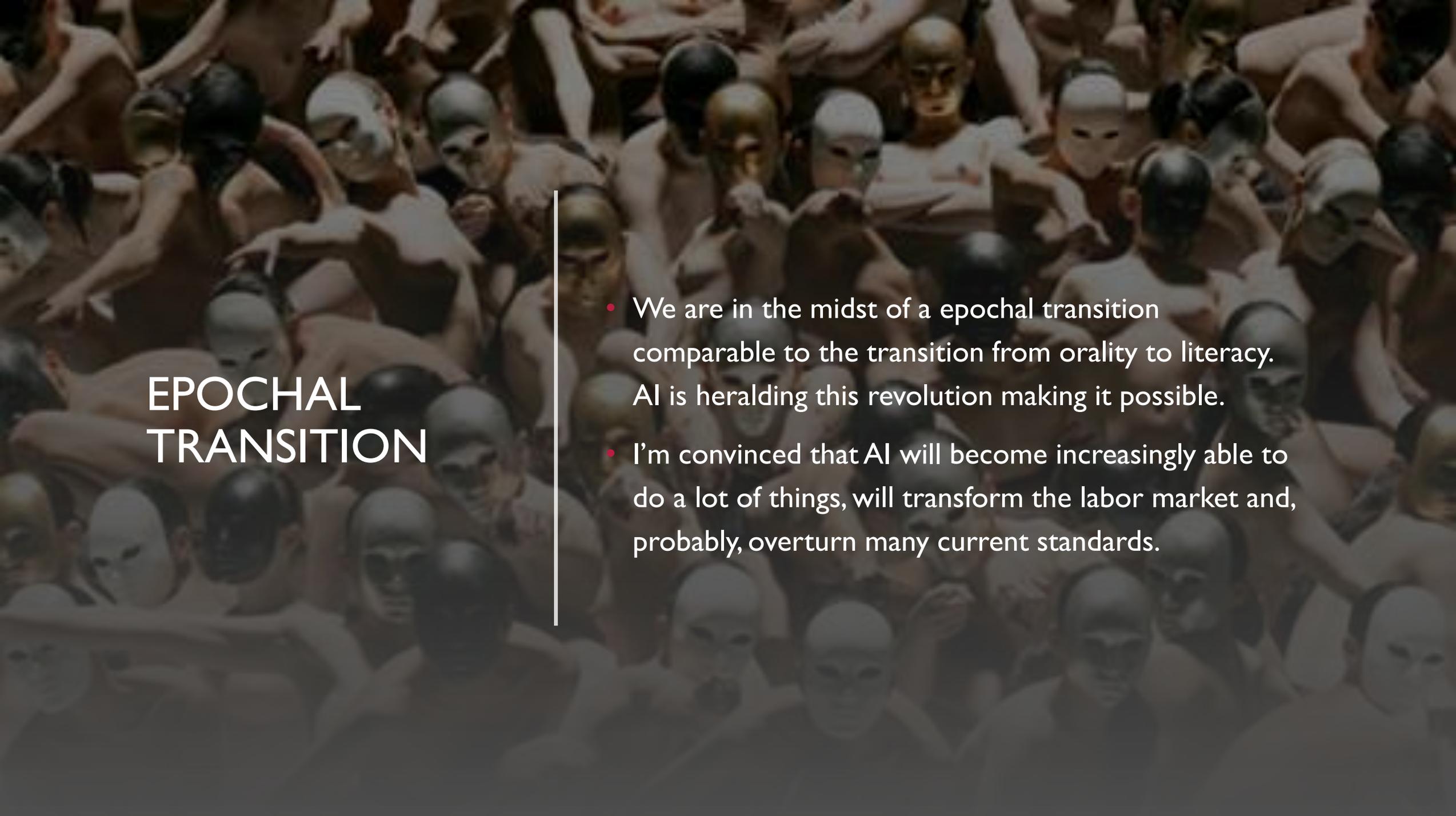
- There is an unbridgeable gap between data and totality.
- On the one hand, totality is not an infinite collection of particularities; by summing up all singularities you will never generate the whole.
- On the other hand, data is, by definition, an asymmetry, a fracture, a lack of uniformity, a difference in reality (Floridi 2010); in other words, the very notion of data denies the concept of totality.



PARROTING HUMAN INTELLIGENCE

- Any data eating machine can only – at the best – parrot human intelligence because it will be never able to apply symmetric logic, which is instead the essence of the human mind. Symmetric logic is incompatible with AI fundamental processes.





EPOCHAL TRANSITION

- We are in the midst of a epochal transition comparable to the transition from orality to literacy. AI is heralding this revolution making it possible.
- I'm convinced that AI will become increasingly able to do a lot of things, will transform the labor market and, probably, overturn many current standards.

ES GIBT ALLERDINGS UNAUSSPRECHLICHES

- Said so, it is quite unlikely that AI will ever become, “automated *esprit de finesse*”, because a symmetric-logic-based machine is a contradiction in terms
- The human world starts where machines stop, beyond that point “*es gibt allerdings Unausprechliches. Dies zeigt sich ...*” (There are, indeed, things that cannot be put into words. They make themselves manifest). We can only show them; they cannot be turned into digits.
- Pannychis XI, the last Delphic priestess, does not answer, she fades away, “*the rest is silence*”.



THANK YOU FOR YOUR ATTENTION

Dr Emilio Mordini

Adult Psychoanalyst

<https://orcid.org/0000-0003-3569-4391>

Via Altan 47 – 33078 San Vito al Tagliamento (PN) – Italy

Tel: +39 0434 1836395 Mobile: +39 348 6549759

12 rue de la Chaussee d'Antin 75009 Paris – France

Tel: +33 (0)179727123 Fax: +33 (0)184107842 Mobile : +33 (0)614085802

Email: emilio.mordini@rtexpert.com

[Haifa University Health and Risk Communication Center](#), Senior Research Fellow

School of Public Health - Faculty of Social Welfare and Health Science - University of Haifa

199 Aba Khoushy Ave. Mount Carmel, Haifa 3498838, Israel

Email: emordini@univ.haifa.ac.il

Personal website: www.emiliomordini.info

